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EDITORIAL NOTES.

How interesting many things are made by the mere passage of time! How pleasant it is, sometimes, to go back into the printed word of the past and see how, in the fulfillment of time, the idle boast of one year becomes the jest of another! The following paragraph appeared under the title "Editorial" on the front page of the *Pacific Medical Journal*, April, 1907:

"A \$75,000 suit. The College of Physicians and Surgeons of San Francisco has entered suit against Dr. Dudley Tait, erstwhile President of the Board of Medical Examiners, and Dr. Philip Mills Jones, Editor of THE CALIFORNIA STATE JOURNAL OF MEDICINE, for slander and libel. These gentlemen will be afforded every opportunity to prove the assertions they have made regarding the college or take the consequences."

This libel-suit-joke was supposed to be based upon an article published in the *STATE JOURNAL* for December, 1906, in which article (furnished by the Board of Medical Examiners) several cases were given where students had been fraudulently graduated from the College of P. & S., S. F.; Dr. Winslow Anderson's college. The promise made in the paragraph above quoted was most sadly broken; the attorney for Dr. Tait and Dr. Jones had instructions to do everything in his power to bring the suit to trial. But the plaintiffs were never quite ready to get down to business. The original complaint was slashed and cut, upon demurrer, so that only its shadow remained. The frauds had been com-

mitted and the college did not want its records brought into court. After dragging along, being taken off the calendar several times and nearly dismissed by the judge, the plaintiff's attorneys asked permission to withdraw the suit and this was granted, some two months ago. And that was the dismal end of the grandiloquent bluff above quoted! What a shame! It would have been such a pleasure to demonstrate from the college's own records, the cases of fraud; but, unfortunately, the college did not seem so keen to press the suit, when the matter got into court, as it did when Dr. Winslow Anderson and Dr. D. A. Hodghead were talking about what they would do, in April, 1907. The college had fraudulently graduated students and these eminent gentlemen knew it. If they wish to bring another suit, here is a good chance to go to it.

The Fortieth Annual Meeting of the Medical Society of the State of California will be held at Sacramento, April 19th, 20th and 21st, 1910, under the administration of Dr. James H. Parkinson, of Sacramento, president. It should prove to be a notable meeting in many ways, not the least of which will be the very important business to come before the House of Delegates, with reference to the fixing upon some permanent plan for Physicians' Defense; either the adoption or rejection of the tentative plan now in force and originated by the Council, or the adoption of some other plan. The work as undertaken by the Council is based upon a very simple scheme and is devoid of any complicated details; it seems to have met with such general approval and endorsement from County Medical Societies and from individual members that there is little doubt that the House of Delegates will alter it to any marked extent. The Program Committee is hard at work upon the program and the members of the Committee are devoting much time to the task—no light one, by the way. In the next issue of the *JOURNAL* we shall give a skeletal program together with some matter from the Committee of Arrangements. As yet no definite report has come from the Committee but it is understood that the sessions of the Society will be held in the Capitol building and the headquarters hotel will be the New Sacramento. Members desiring to present papers at the Sacramento meeting will please notify the Chairman of the Program Committee at once; address, Dr. H. R. Oliver, Butler Building, San Francisco, California. *Do not wait till the last moment or the program will be complete and there will be no room for your communication.*

The San Francisco County Medical Society, and its attorney, Mr. Walter Kaufman, have indeed won a signal victory for decency and honesty in medicine by the conviction of one Dr. John J. Arberry of the crime of attempting to obtain money by false pretense, which verdict was secured after months of hard work, on January

**DR. ARBERRY
CONVICTED.**

13th, 1909. The case itself was the usual sort of quack grafting. A country boy came to town, went to "Dr. Taylor & Co." for a slight pain in the back, was promptly stung for all he had—\$10.00—and the boy's aunt and guardian was bled for \$200.00 more. It came so easy that Arberry, who runs "Dr. Taylor & Co." tried to get another couple of hundred dollars by telling the aunt that the boy had valvular disease of the heart and would die if he did not cure him—for \$200.00 more! But he overstepped himself and that same day saw his arrest. He made a hard fight (it is said that the quacks have subscribed no less than \$25,000.00 to protect him), retaining Carrol Cook, to whom the Assistant District Attorney referred as "the fox of the bar," as his counsel. Through the able work of the attorney, evidence was admitted from four distinguished members of the Society who had examined the boy, to the effect that they could and did swear as a matter of fact (and not a mere opinion) that the boy did not have and never had had either an abscess of the prostate or valvular disease of the heart. It is the first case of the kind in which a verdict of this sort has been secured in the United States, and it marks an epoch in the war of honesty and legitimate medical science against those dishonest and disreputable members of the profession they disgrace who follow the practices of the advertising quack. It was learned from the defendant, under cross-examination, that "Dr. Taylor & Co." is a corporation, the principal stockholder being one O. C. Joslen, formerly licensed to practice in this State, but who was convicted in the U. S. Court in 1905 and his license revoked; his crime was sending a letter, offering to commit an abortion, through the mail. Six of this gentry were convicted at the same time, but as they were only fined \$500.00 apiece, it did not do much good. If we can get some more of these chaps on the "false pretense" charge, which is a felony and State's prison offense, it will probably discourage the thriving business of quackery in this State. The thanks of the Society are certainly due the four physicians who gave so much of their time to following the case and giving their evidence: Dr. John C. Spencer, Dr. E. G. McConnell, Dr. A. J. Lartigau and Dr. Emile Schmoll.

Of recent years a new field has been opened for properly equipped physicians which has not received the attention from our medical schools **SANITARY NEEDS.** that it deserves. Dr. William F. Snow, a thoroughly trained sanitarian and the Secretary of the State Board of Health, says that there are few men available who possess the necessary education in preventive medicine to make them efficient officers of the public health. At this time, when so few opportunities are open to medical graduates, it would seem that universities should fill this want by giving an adequate course of instruction in Sanitary Science.

That the scope for such work will soon be increased is shown by Dr. Snow's statement. He believes that the State should be divided into several administrative sections, such as the Sacramento Val-

ley, the San Joaquin Valley, Eureka, San Francisco and Los Angeles divisions. In each the State Board of Health should place a medical officer, who would give his entire time to the work, and a sub-station of the Hygienic Laboratory properly equipped and provided with an assistant. Food and sanitary inspectors would be under the immediate direction of the division medical officer. The duties of such officers would be largely advisory to county and local health boards; they would be continuous employees of the State with positions secure from political influence. Furthermore Dr. Snow urges all incorporated towns of 10,000 and over to appoint a full time medical officer of health and to give him the essential laboratory equipment for the ordinary work of milk and communicable disease control. Unincorporated towns and thickly settled rural districts will be encouraged to unite in forming union districts for the provision of a health officer and a laboratory.

The State has set the example for good and thorough work and our medical schools will be forced to recognize the growing demand for well trained sanitarians.

This whole question of the prosecution of illegal practitioners and of those who are licensed but are nevertheless following dishonest quackery, is a very large and very important one. For years it has been neglected; indeed, it never was done in anything but a casual and sporadic manner, and now that one comes to look into the Augean stable, it is seen at a glance that the work of cleaning up is going to be no child's play. The Board of Examiners has retained an attorney—Mr. Kaufman, who prosecuted so successfully the Arberry case—and a plan for a general move for the defense of the law is being formulated. It is a tremendous undertaking, however, to see that this work is properly launched all over the State; and especially is this the case when we remember that the Board is practically without funds to begin the work. But it will be begun and at no distant date; the object is to begin it right and let it develop slowly and surely; funds will be forthcoming when the work is under way. Because so very little has been done in past years, and as naturally follows therefore, because there are so many violations of the law in various parts of the State, many of our members and physicians generally have become impatient—and naturally. But we should remain as patient as possible for awhile yet and see whether the plan the Board of Examiners so recently decided to formulate will not work out right in the end; it is often better to "make haste slowly" than to rush things and have subsequent trouble that might have been avoided.

Surgery, of necessity, courts simplicity. Elaborate instruments, cumbersome apparatus and involved methods of procedure are out of place in the modern operating room. Our needs are few; pretentious antiseptic methods have given way to simple asepsis. We scoff at complicated apparatus, such as

ADVANCES IN THORACIC SURGERY.

Bardenheuer uses in his treatment of fractures; even the status of the electric burr is doubtful. We are learning principles and we seek to consummate them in the easiest way. Treves would have us beware of the surgeon of many tools.

As surgical knowledge has advanced its practitioners have attacked one portion of the body after another and in each new field the subject has been worked out from the complex to the simple. The chest cavity has been the last to seriously engage our attention and its surgery is advancing most rapidly. The use of differential pressure is certainly a necessity in many cases, if not in all, and the solution of this interesting problem has called forth many mechanical devices, of which the positive pressure apparatus of Brauer and the negative pressure cabinet of Sauerbruch may be considered as the types. In the last number of the JOURNAL Bunnell described an ingenious contrivance for positive pressure. The combination of positive and negative pressure in the apparatus of Willy Meyer marks the acme in expensive, elaborate and cumbersome construction.

In view of these facts a recent contribution by Meltzer and Auer is of the greatest interest. These authors have found that respiration can be carried on without any normal or artificial respiratory movements whatever. This is done by inflating the lungs with air under fifteen or twenty millimeters' pressure by means of a foot bellows attached to a tube about two-thirds the size of an anaesthetized dog's trachea. The tube is pushed through a tracheotomy wound down to the tracheal bifurcation. The apparatus allows perfect pulmonary ventilation; respiratory movements continue if one side of the chest only is opened. The entire front of the thorax may be cut away by this method the lungs remaining unmoved. If the air is first passed through an ether bottle the animal may be kept in excellent condition for four hours or longer.

It is interesting to note that Carrel has been using the method with good results in operations on the thoracic aorta. It would seem that this work of Meltzer and Auer is the most important contribution on the subject which has yet appeared for it involves a new principle.

Probably no more significant legislation has been enacted in San Francisco during the past year than the ordinance relative to the prevention of the spread of tuberculosis, which recently became a law. It will be remembered that the Tuberculosis Committee of the Medical Society of the State of California introduced a bill into the State Legislature last winter "defining the powers and duties of physicians, local health officers, and boards of health in the matter of the protection of the people of the State of California, from the disease known as tuberculosis, providing for requisitions and reports, and making appropriation therefor." This bill passed both houses of the Legislature and was vetoed by the Governor for reasons which he endeavored to explain in a veto message. The comments of the committee on this

strange message were set forth in its Annual Report (See JOURNAL, Vol. 7, page 162.) The recommendation of the committee, namely, that local boards of health endeavor to have enacted ordinances relative to the prevention of the spread of tuberculosis, has been fulfilled in San Francisco through the enactment of the above-named ordinance. This ordinance is practically a reproduction of the state bill, with the addition of a section giving the Health Officer discretionary power in the forcible removal of a tuberculous individual who through carelessness and indifference persists in habits of living, which directly endangered others. It would seem impossible to the casual reader that such cases exist; yet a tour of inspection any day with one of the nurses of the San Francisco Tuberculosis Clinic, will convince the investigator how necessary is such a provision. This ordinance places San Francisco at once among the most advanced American cities in point of legislative enactment for the control of tuberculosis. With an active tuberculosis association and a board of health energetic in the accomplishment of measures for the relief and control of tuberculosis, we may confidently look forward to an early amelioration of those conditions which have given San Francisco a mortality from this disease, which has been a serious reflection on our civilization. It is sincerely to be hoped that the hearty co-operation of the medical profession of the city will not be lacking in the enforcement of this ordinance.

In two towns in our State most iniquitous action has been taken by the Town Trustees. At St.

OUTRAGEOUS
TREATMENT.

Helena and at Salinas ordinances have been passed requiring a license of \$12.00 per year to practice medicine. In St. Helena several of the local physicians refused to pay the license and were arrested. Their refusal was based upon the injustice of the imposition and the case will be fought out. It seems likely that the ordinance will be defeated, but it is also understood that another and similar ordinance will be passed if the present one should be found faulty. What action has been taken at Salinas we have not heard, but it is to be hoped that the resident physicians of that community will most emphatically record their protest. To tax the one profession that gives so liberally and so ungrudgingly of its time, its brains and even of its scanty dollars to charity and charitable works, is indeed an outrage! The medical profession gives more in time and work and money or its equivalent than all the charitable organizations in the country combined. Physicians in attendance upon our county and city hospitals and institutions of a similar sort, are seldom, if ever, paid for their services, though the communities benefit from the unselfish work of the doctor. There are doubtless a goodly number of citizens in both these communities who have received their professional attention free at the hands of the local physicians, these same medical men knowing full well that they would never be paid for their work. It is indeed an outrage and one that should come to

the attention of the State Society at the coming meeting in order that we may see if some means may not be devised for aiding the physicians of St. Helena and of Salinas in their fight against unjust imposition.

Since the establishment of the Plague Laboratory in San Francisco by the United States Public Health and Marine Hospital Service

SCIENTIFIC WORK ON PLAGUE.

an enormous number of rodents have been examined and other routine duties performed. The officers attached to the Laboratory have also found time for original investigations which reflect great credit on themselves and their corps. This work is of much practical importance, and it should be a source of pride to the physicians of the State that a pestilence, which threatened to annihilate its citizens, should have been harnessed and turned to such excellent service. The JOURNAL has thought it would be of interest to give a resumé of the more important of these reports.

Wherry (Journal of Infectious Diseases, Vol. 5, No. 5, Dec. 18, 1908) exhaustively discusses the subject of plague among the ground squirrels of California. In this valuable paper we have the record of the first cases of natural plague infection among ground squirrels in America and a forecast of the danger that confronts the State and the Nation if prompt and vigorous measures are not taken to suppress the disease among these rodents.

McCoy and Wherry (Journal of Infectious Diseases, Vol. 6, No. 5, Nov. 26, 1909) record a case of plague that was traceable to ground squirrel infection with almost the certainty of a laboratory experiment. The diagnosis appears to have been established beyond the slightest doubt by very careful bacteriological examinations. Clinically the case was one of the rare and unusual type known as subacute plague. It is probably the first of this type to be reported in America.

McCoy (Journal of Infectious Diseases, Vol. 6, No. 5, Nov. 26, 1909) reports upon the bacteriology and pathology of the first extensive series of cases of plague to be recorded in the ground squirrel. The paper leads one to the conclusion that the majority of cases of the disease in these rodents are of the subacute or chronic type. With our present knowledge of the mode of transmission of plague from rodent to man, there would seem to be but comparatively little danger of infection of human beings from these chronic cases of ground squirrel plague.

McCoy (Journal of Infectious Diseases, Vol. 6, No. 2, April 1st, 1909) conducted an extensive series of experiments to determine the virulence of old and of recent cultures of the bacillus pestis. They are particularly interesting to Californians, because they show that the cultures, isolated during our recent epidemic among human beings and epizootic among rodents, are highly virulent. Perhaps the most surprising feature of the report is the high degree of virulence retained by certain old cultures

of the plague bacilli that have long been grown on artificial media.

In another paper (Journal of Infectious Diseases, Vol. 6, No. 3, June 12, 1909) McCoy establishes the very interesting fact that a large percentage of the rats in San Francisco are quite immune to plague infection. The writer believes that the immunity is a natural one and not acquired by a previous infection.

In another communication in the same journal McCoy reports some interesting experiments upon the susceptibility to plague infection of ground squirrels, gophers and field mice. It was found that the field mice were just about as susceptible as the ordinary house-rat. The writer, however, concludes that as man rarely comes in contact with this rodent, the danger of infection would be small. The gopher appears to have a high degree of immunity. It would appear that a solution of this problem of the immunity of gophers might have an important bearing on the possibility of producing a successful immunity among other rodents. The ground squirrel on the other hand was found to be very susceptible to the disease.

McCoy and Mitzmain (Public Health Reports, Vol. 24; No. 8, Feb. 19, 1909) present an extensive series of investigations upon the biting of man by fleas from rats and squirrels. The results of the work tend in a general way to confirm the observation of the Indian Plague Commission, and are directly at variance with the reports of other investigators. They find that all rat fleas will bite man under experimental conditions and they confirm the prevalent suspicion that fleas from ground squirrels are not averse to making a meal upon human blood when the opportunity offers.

In another paper these workers (Parasitology, London, Vol. 2, No. 3, Sept. 30, 1909) have investigated the regional distribution of fleas on rodents, a subject which on first sight would seem of purely theoretical interest. However, when we remember that one of the important pieces of evidence of flea transmission recorded by the British Indian Plague Commission was the regional distribution of buboes in rats, the subject assumes a different aspect. McCoy and Mitzmain have found that in infected rodents in California the head and neck is not the area of the body most frequented by rat fleas and this they state is quite in accordance with the localization of buboes in these animals in California.

In the Monthly Bulletin of the California State Board of Health, for November, 1909, there appears a short article by Dr. McCoy upon the diagnosis of plague in man.

McCoy reports (Journal of Medical Research, Vol. XXI, No. 2, September, 1909) upon the extensive series of tumors found in rats in San Francisco. In view of the importance of the study of tumors in rodents in connection with the cancer researches that are being conducted in this and in other countries, it would seem unfortunate that there is no provision in San Francisco for utilizing the magnificent material bearing upon this subject available at the Federal Plague Laboratory.

ORIGINAL ARTICLES

THE USES OF COLI AND STREPTOCOCCIC VACCINE IN URINARY DISEASES.*

By A. B. GROSSE, M. D., San Francisco.

In taking up the therapeutic value of coli and streptococcic vaccines in urinary disorders, I, in this brief paper, purposely refrain from alluding to the technical preparation of these vaccines, as well as to the large literature on the subject. Deeming it wise to briefly take up certain cases chosen from my private practise, and briefly summarizing deductions arrived at therefrom.

Case 1. Mr. E. D., eighty years of age, came to me two and a half years ago, had an enlarged prostate and infected bladder. A nelaton catheter of normal size enters the bladder easily. Residual urine, seven and a half ounces. Culture of urine discloses a pure coli infection. He is treated with injections of nitrate of silver, taught proper catheterization and given urinary antiseptics. For five months, patient very much improved; residual urine two ounces. Suddenly, marked relapse, urine loaded with pus, and of a foul odor. Patient strains to urinate every hour or even more frequently, and is constantly suffering from burning and pain. This is not relieved by the use of opium suppositories, hot sitz baths, etc. As patient refuses operation, an autogenous vaccine is prepared, one hundred million bacteria to one c. c. is injected. This is followed by a rise of temperature, pain in joints and general malaise (negative phase). Next day is much relieved, burning has diminished and pus is present in much smaller quantities. With doses of fifty million injected every five days, patient does exceedingly well for three months, and is now catheterizing once in twenty-four hours, residual urine is not in excess of one-half ounce, pus microscopically present, and bacteriuria persistent. After a period, symptoms again become aggravated. Upon the preparation and use of a new vaccine, pus, burning, and ardor urinae quickly vanish. Since then I have had vaccines made for him monthly. Until six months ago, in an excellent condition, when suddenly frequent urination of a very few drops of urine loaded with pus, without odor took place, no residual urine, but a general marked depression appeared. New vaccines of no avail, until, upon culture, a slow-growing streptococcus was found. A vaccine of this organism, thirty million to the c. c. injected gives an almost immediate relief, patient for the first time in weeks, is able to hold urine for over four hours. After four injections of streptococcic vaccine at four-day intervals, urine shows no more streptococci; the colon bacteriuria persists. If, for some unknown reason, the coli vaccine becomes innocuous, his symptoms reappear. He has a coli bacteriuria, microscopic pus, no residual urine, and is enjoying an active career.

Case 2. Dr. L. C., age 72, confined in hospital for three months with gastro-intestinal trouble, consults me for frequent painful urination, pus in urine, urethritis and thirteen ounces of residual urine. He has catheterized every six hours under every precaution up to date. This procedure is very painful on account of the urethritis. Culture of urine, as well as urethral discharge shows pure coli infection. Symptoms disappear very rapidly upon the use of vaccine, residual urine four ounces, no urethritis, no pain on catheterization, bacteriuria and microscopic pus still present.

Case 3. Mrs. P. Pelvic Pyelitis, acute pain in region of left kidney, pus in urine, high temperature, no results upon expectant treatment. Injection of vaccine followed by fall of temperature, and relief from symptoms. Next day, a large dose given erroneously which is followed by negative phase, a proper dosage over a period of several weeks. Patient recovers. The urine upon repeated cultures is found to be sterile.

Case 4. Mr. H. D. M., age 28, three years ago was treated by me for gonorrhea with full recovery in three weeks, repeated cultures of his very scanty urethral discharge showed streptococci in pure culture. Came in five months ago, with a temperature of one hundred and three, and an involvement of his right hip and knee joints, given an injection of streptococcic stock vaccine, which had been prepared from another urethral case. This was followed by an almost immediate amelioration of all symptoms. The culture showed pure streptococci. An autogenous vaccine was prepared and given to him at regular intervals. Upon repeated cultures taken recently no streptococci were demonstrated.

Case 5. Mr. H. S., was referred to me; had been suffering for a period of nine years with what was considered recurrent, acute and sub-acute articular rheumatism. It had been pointed out to him that this might be gonorrheal in nature. I examined him, found that he had a small amount of discharge glaring in character, resembling macroscopically the uncoagulated white of egg. This patient being an attorney, a very intelligent man, and an acute observer had noticed that this discharge increased when his joint symptoms exacerbated and also, that his throat, particularly his tonsils, became slightly painful at this particular period. Upon culture, the streptococcus in pure culture was demonstrated. He has been receiving vaccine during seven weeks, his tonsils have been removed, his joint symptoms have entirely disappeared, his general depression has vanished. Culture recently made showed an absence of streptococci.

Case 6. Mr. S., had purulent urethral discharge of very long standing, which failed to react with ordinary treatment, has been through the hands of quite a number of competent specialists. Upon culture streptococci were demonstrated. A few doses of this vaccine markedly decreased his discharge.

Case 7. Mr. E. H. K., has tabs and a paralytic bladder, urine upon culture shows pure culture of streptococcus, patient is greatly debilitated, has a severe cough and lung symptoms, for which he is examined by Dr. George H. Evans. His sputum also shows many streptococci. He is taught to catheterize properly and is given his vaccine at regular intervals. After six weeks urine upon repeated cultures is found to be sterile. After the first injection of vaccine, his cough and expectoration decreased, so that both of these conditions were cured by the vaccine.

Conclusions.

1. That autogenous vaccines have a definite place as therapeutic agents in urinary diseases.
2. That vaccines must be prepared by a proficient bacteriologist, and that a well-equipped laboratory in conjunction with treatment rooms is essential.
3. That fresh vaccines are necessary, as vaccines deteriorate much more rapidly than is generally conceded.
4. That cases of enlarged prostate with an infected bladder, in which a fair sized nelaton catheter enters the bladder easily, should not be operated upon, until vaccines have been given a thorough trial.
5. That in infected and encapsulated organs or where chronic inflammatory infiltrates surround the infected areas, vaccines should be supplemented by the Bier treatment to enhance the blood supply.

* Read at the Annual Meeting of the American Urological Association at Atlantic City in June, '09, as part of the Symposium on Vaccines and Sera.

CARCINOMA AND THE CERVICAL LYMPHATIC SYSTEM.*

By RAYMOND RUSS, M. D., San Francisco.

While the surgical treatment of malignant growths cannot be said to be ideal, it is at present the rational method of dealing with such neoplasms and will remain so until laboratory research has given us definite information as to their etiology and possibly their treatment by other means. Years of careful clinical work have thoroughly established two important principles in the handling of these conditions: First, the thorough removal with a good margin of sound tissue of the primary growth and, secondly, the extirpation of the whole lymph bearing area.

It is singular that the importance of this second principle has not been as generally realized in handling the lymphatic channels of the neck, secondary to carcinomatous conditions about the face and mouth, as in treating the corresponding area of drainage in cancer of the breast, for the chances of affecting a permanent cure are in the first instance much greater. Cancers about the face and mouth are of the squamous cell type and they form internal metastases very rarely, the cervical lymph glands serving as an effectual barrier against the further progress of the disease. This fact is particularly fortunate. Kuttner found in cancer of the tongue but four cases of distant metastases out of a large number examined from different clinics in Germany, and it is in this form that infection spreads most rapidly.

Nevertheless there seems to be an apathy on the part of many operators and the neck is not treated with that thoroughness which characterizes operations on the axilla. The true reasons are to be found in the mechanical difficulties which have deterred many and the fact that a small percentage of carcinoma of the head remain well without the extirpation of the cervical lymphatics. Not a few surgeons open the neck only when the glands are perceptibly enlarged and then remove those that can be easily palpated.

Glandular metastases are more to be feared in certain regions of primary growth than in others. Anton Meller, in a careful review of 327 cases of epithelial carcinoma of the head and neck, reports that the glands of the neck were involved in 90 per cent of all cancers of the lower lip, but that in cancer of other portions of the face the involvement was from 18 to 43 per cent. It may be added that glandular metastases are more to be feared in cancer of the tongue than in lip cancer. The tongue and lower lip are far richer in lymphatic drainage than other portions of the head. That the lymphatics may be removed thoroughly and systematically it will be necessary to know not only the positions of the gland groups but the areas which they drain. For the sake of simplicity the discussion will be limited to the lower lip, the tongue and the alae of the nose. The nodes which here concern us are the parotid, the submaxillary, the submental and the deep cervical groups and their relative positions are shown in the diagram (Fig. 1).

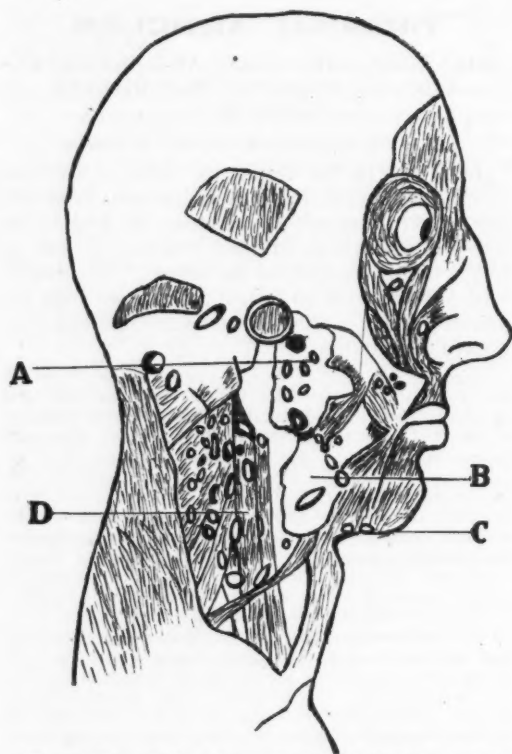


Fig. 1—Lymphatics of the Neck (adapted from Delamere, Poirier and Cuneo). A—Parotid Group. B—Submaxillary Group. C—Submental Group. D—Deep Cervical Chain.

In the parotid region there are one or two subcutaneous nodes between the parotid fascia and the salivary gland. The deep nodes are within the parotid salivary gland but fortunately they drain the region of the eye, the scalp, the root of the nose and the upper portion of the cheek. In carcinoma of the posterior portion of the tongue the removal of the lower zone of the parotid gland is essential.

The submaxillary group is made up of three to six nodes superficially embedded in the sheath of the submaxillary salivary gland. Sometimes they are even found in the gland substance. It is practically impossible to remove these nodes without extirpating the salivary gland itself and this should always be done when the group is attacked for malignancy. The submaxillary glands drain in turn into the deep cervical glands.

The submental group consists generally of two glands which lie upon the mylo-hyoid muscle between the anterior bellies of the two digastric muscles.

The deep cervical are numerous nodes which extend from the mastoid process to the root of the neck. They lie under and posterior to the sternocleidomastoid muscle and are in intimate relationship with the internal jugular vein.

The Lower Lip. The lymphatic channels from the lower lip empty into the submental and submaxillary nodes and these will generally block infection for quite a period. Infection of a deep cervical gland sometimes takes place early but not frequently. The deep cervical chain is, however, often

* Read before the Annual Meeting of the Nevada State Medical Association, October 7, 1909.

involved in lip cancers which have gone some time before receiving surgical attention. One gland on the anterior surface of the internal jugular vein, where the omo-hyoid muscle crosses it, is especially prone to infection in these cases.

The Tongue. The lymphatic vessels from the forepart and tip of the tongue drain directly into the submental group. The middle of the dorsum of the tongue, its edge, lower surface and the entire floor of the mouth empty their lymph into the submaxillary nodes. The dorsum of the tongue, still further back, empties its lymph into the parotid group, while the lymph from the anterior portion rarely passes this way. The deep cervical glands are involved very early in this form of the disease and should always be removed. A cancer of the tongue, however small, may involve all groups so that the total extirpation of the lymphatic area upon the affected side is necessary. The tongue is made up of two halves which must be considered as anatomical entities, for each has its own nerves, its own blood vessels and lymphatics. Although these systems anastomose across the raphe, the clinical fact remains that cancer on one side does not readily cross the median line. Where the primary growth is situated on or very near the raphe it is essential to clean out the lymphatics on both sides of the neck; in other conditions it is only necessary to operate on one side, as Butlin in his large experience has shown. The tendency for cancer to spread toward the base of the tongue and not in the direction of its tip makes the removal of the lower zone of the parotid gland necessary in all cases, and when this is perceptibly involved, it is imperative also to carry the dissection into the posterior triangle of the neck.

The Nose. From the alae of the nose the lymphatics drain directly into the submaxillary and submental nodes. While there is little danger of metastases in superficial epitheliomata, especially in the aged, this danger becomes materially augmented when the malignant process reaches a deeper level. In this group of cases there seems to be a strong tendency to neglect operation upon the neck. Although the immediate danger is not as great as in carcinoma in other locations, it is sufficient to demand thorough removal of the submental and submaxillary nodes in each instance.

In the extirpation of lymphatics I prefer the transverse or collar incision, because it not only gives a large and free exposure of the node groups but allows also a careful inspection of both sides of the neck. This incision should parallel a neck fold and should extend from the posterior border of the sterno-cleido-mastoid transversely across the neck, just above the thyroid cartilage, to a corresponding point upon the opposite side. The external jugular veins are caught and tied securely above and below. The skin is rapidly dissected up until the flap can be easily raised over the symphysis of the jaw (where it is held by a strong traction suture in the hand of an assistant), thus freely exposing the submaxillary and submental areas. The incision can be carried further back if desired. This flap should be made

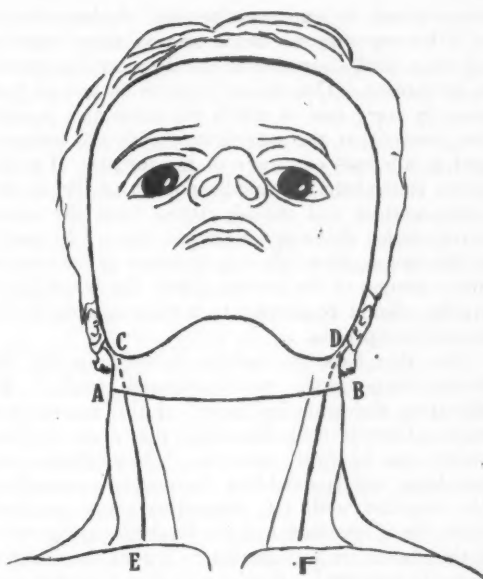


Fig. 2.—Shows lines of incision employed in extirpation of the Lymphatics of the Neck. The transverse incision AB extends from the posterior border of the sterno-cleido-mastoid muscle transversely across the neck, just above the thyroid cartilage, to a corresponding point upon the opposite side. This incision may be carried further back if desired. In the removal of the deep cervical chain a longitudinal incision along the sterno-cleido-mastoid will be necessary, CE, DF. The dotted portion of the line of incision is made only when removal of the lower zone of the parotid gland is desired.

of skin alone as there is a superficial node lying in the subcutaneous fat over the submental region and another over the submaxillary gland. The submaxillary and submental nodes and their lymph channels should be removed *en bloc* together with the submaxillary gland. This gland is shelled out until the duct is reached; if this be tightly tied with silk the operator need have no fear of the formation of a salivary fistula. If one is dealing with a carcinoma of the lower lip the nodes and their channels, together with the submaxillary glands, should be thoroughly removed on both sides of the neck. Quite an area can be uncovered by dissecting down the skin to form a lower flap, stab drains of silkworm gut being placed at the lowest level. The incision is sutured by a subcuticular stitch of catgut or a through and through stitch of horse hair. The line of suture is protected with silver foil and a layer of fluffed gauze; a piece of gutta-percha tissue is next bound tightly over these by adhesive plaster to protect the wound surface from the dribbling of saliva which is so often an accompaniment of operations upon the lip and tongue. The skin of the neck, following the removal of the lymphatics, is frequently the seat of a hard lymph oedema which may persist for several weeks.

The transverse neck incision, if good coaptation be obtained in suturing, leaves a scar which after a short time is hardly perceptible, a fact to which Kocher early drew attention. This is no small gratification to the patient and, as the area exposed by the upper flap is satisfactory, there is no reason why it should not be more generally employed. The

longitudinal incision stretches and thickens but it will be necessary to use it also in those cases in which a block dissection of the deep cervical glands is performed. This should be done on one or both sides in every case in which the transverse incision has shown that the superficial glands are infected, and in all cases of cancer of the tongue. The incision runs along the middle portion of the sternocleido-mastoid and should extend from the transverse incision above to the clavicle below. In cancer of the tongue, in which it is necessary to remove the lower portion of the parotid gland, the longitudinal incision should be carried to a point a little below the mastoid process.

The skin flaps are rapidly dissected up and the sterno-cleido-mastoid muscle exposed freely. By liberating the posterior border of this muscle and then pulling it well forward, the deep cervical glands can be easily reached. These glands and lymphatic vessels should be thoroughly removed *en bloc* together with fat, connective tissue, portions of muscle if necessary and the internal jugular vein, if the glands are so adherent to it that they cannot be easily separated. Butlin, who first proposed and practiced this extensive operation, has even gone so far as to remove a portion of the external carotid artery. Blunt dissection should be avoided and great care should be taken to handle the lymphatic tissue as little as possible, thus avoiding the dissemination of cancer cells. It is surprising how much tissue can be sacrificed. All of the structures on one side of the neck, with the exception of the internal carotid artery, may be removed. Extirpation of one sterno-cleido-mastoid muscle causes little inconvenience and Crile has several times removed both. The sterno-hyoid, sterno-thyroid, digastric, omo-hyoid and platysma are of comparatively small importance. Bilateral excision of the vagi is fatal, but unilateral excision is attended by hoarseness and an irregularity of the pulse which persists for several days only. Excision of one phrenic is followed by paralysis of less than half the diaphragm. Excision of one hypoglossal affects the tongue considerably in speech, especially at first; in bilateral excision a fatal pneumonia usually ensues. While the internal jugular can be removed on one side without risk, as advocated by Cheyne, the operator must be assured of a collateral circulation before removing the second. It is true that in the neck many glands may be enlarged without showing cancerous involvement under the microscope. It is unwise, however, to assume that these inflammatory changes are innocent and that the glands would do no harm if allowed to remain in situ.

The greatest difficulty in these operations is the control of hemorrhage, which is oftentimes stubborn and persistent. If the table is on a sharp incline, the head well elevated, much has already been accomplished in eliminating the troublesome venous oozing. A table that is easily adjustable is desirable, for it may be necessary for the anaesthetist to change the patient's position to the horizontal at any time. Whitehead often prefers that the patient should be in a sitting posture in operating on the tongue. A large number of mosquito haemostats will gen-

erally suffice for the arterial hemorrhage. Crile has practiced, in a large number of cases, temporary closure of the common carotid by means of a special clamp prior to the block dissection. He now closes the common carotid until the dissection has been carried up to its bifurcation, when the clamp is transferred to the external carotid artery. Fortunately the sheath of the artery is very seldom involved in the cancerous process, as its ligation carries with it great danger of embolism. It is most important that the patient lose just as little blood as possible. Gaylord, Ehrlich, Bashford, Beebe and Ewing have all shown that animals who are bled have their resistance to the disease decreased. It would seem that the patient who loses the most blood has the least chance of making a permanent recovery.

I have considered it outside the confines of this paper to take up the discussion of the initial lesion and its treatment, but it may be said that operative removal of the glands and lymphatic channels of the neck should precede that of the primary growth. Boyd and Unwin have emphasized the fact that if the tongue be extirpated at one sitting and the lymphatics removed one or two weeks later, an increased flow of lymph will result and the disease be more widely disseminated. Whether both operations are performed at the same time will depend largely upon the extent of the involvement and the physical condition of the patient. In cancer of the lower lip the tumor can be generally removed by a broad V-shaped incision at the same sitting. It is probably wiser to extirpate a cancer of the tongue nine or ten days after the neck operation or even at a later time.

It is not uncommon to find lymphatic involvement at a very late date after operations which remove the primary growth alone, and the three-year period, which has figured in statistics of the very small number of recoveries from this method of treatment, is not to be depended on. The following instance is given in illustration: In April of this year I saw a man of fifty-five years of age with a tumor the size of a walnut in the median line of the neck just below the symphysis. His general health had been good but he had been a constant smoker for forty years. The mouth was entirely negative, but on the lower lip, very near the left angle, was a small scar. The patient stated that seven years before an ulcer had appeared on this site which had been pronounced a cancer and had been treated by the application of caustic pastes. It had given him no further trouble. He had always held his pipe on this side of his mouth, but the ulcer had forced him to shift its position to the opposite side which had since been his habit. He had noticed the tumor in the neck but three weeks and it was freely movable. I advised immediate operation but the patient did not consent until one month later. The tumor was then the size of a small egg, firmly adherent to the underlying muscle and directly in continuation with the symphysis of the jaw. The left submaxillary gland was enlarged but there was no general glandular enlargement. The tumor was found to be a metastatic carcinoma involving the submental nodes. The pathologist reported that

all the other nodes removed which he had examined, including both submaxillary salivary glands, were negative.

Summary.

It is often difficult to decide just how extensive operations should be. From the published statistics I have deduced the following rules for my own guidance and they may be of assistance to others; many of the principles have already been mentioned in the body of this article.

In cancer of the lower lip the lymphatic channels with the submental and submaxillary nodes on both sides, including the submaxillary salivary glands, should be removed by a block dissection; if any of these nodes are thought to be cancerous a block dissection of the deep cervical glands should be done as well on the corresponding side. If the infected glands are in the median line, the deep cervical chains on both sides should be removed.

In cancer of the tongue the deep cervical nodes so quickly become infected that their extirpation, together with the submental and submaxillary nodes and the submaxillary salivary gland upon the affected side, is imperative. When the growth is on the posterior portion, the lower zone of the parotid gland should also be removed and, if this is involved, a dissection of the posterior triangle of the neck will also be necessary. Only in those cases in which the primary tumor is on or very near the raphe will it be necessary to operate on both sides of the neck. DaCosta cites an instance in which the disease affected both sides of the neck, the primary tumor being strictly unilateral. Fortunately such instances are rare. The transverse skin incision gives abundant opportunity for the examination of the glands on both sides.

In cancer at or near the alae of the nose the submaxillary and submental nodes, together with the submaxillary salivary gland upon the corresponding side, should be removed *en bloc*. The deep cervical chain is dissected out when the other nodes are involved.

An enlarged gland should be considered as cancerous. Removal of the tissues between the primary disease and the glands adds so much to the risk of the operation that it is not to be performed unless the primary growth is very extensive.

It is safe to prophesy that the time is not far off when all operators will treat the lymphatic area of the neck with the same degree of thoroughness as is now given to the eradication of lymphatic channels in the axilla. We can believe that when this time comes, statistics of cures for cancer of the face and mouth will exceed those of cancer of the breast.

IMPORTANCE OF THE EYE, EAR, NOSE AND THROAT EXAMINATIONS IN THE RAILWAY SERVICE.*

By A. C. SEELY, M. D., Roseburg, Oregon.

This is rather a long title, but I promise you a very short paper. This subject was selected because I feel convinced that the examination of the eye

and ear beyond vision and audition receives too little attention, and the nose and throat none at all.

This conviction is based upon the greater percentage of pathologic conditions encountered in this field among railway employees than in like classes of similar service where a closer scrutiny of these organs is demanded, and further, if the applicant had been properly inspected before entering the service, there certainly would not be such a great number of defective men, since the conditions alone are not sufficient to account for the excessive percentage above noted.

The importance of a thorough investigation of the eye, ear, nose and throat is recognized by the civil service, army and navy examinations; and is, so far as my experience goes, rigidly observed. The American Railway Association have but one provision for these examinations. "Rule 1—Applicants with trachoma or other inflammatory conditions of the eyes, or with chronic discharges from the ear are disqualified."

That is rather too general in its application to the eyes, and ears, and does not take up the nose and throat at all.

The Southern Pacific Company have endeavored to cover the ground by having the following questions put to the applicant:

1. Have you ever had any disturbance of sight such as blurring, pain in the eyes or over the eyes after reading or dizziness?
2. Have you ever had any acute or chronic inflammation of the eyes?
3. Have you ever had ear-ache or discharge from the ears?
4. When did the ear discharge last?
5. Have you any obstruction to breathing through either nostril?
6. Do you take cold in the head easily or have you chronic catarrh of the nose or throat?
7. Have you ever consulted a physician for any trouble with your eyes, ears, nose, or throat?
8. Who was the physician, for what trouble did he attend you, when and how long?

It is our experience that these questions are barren of results. The applicant's answers cannot be depended upon. He is before you to show that he is without fault; obviously he will not confess them if he has any. If his application was for benefits, rather than employment, he could immediately flood you with symptoms. I may admit that I am suspicious of most applicants for whatever form of employment or insurance. In answer to questions they often say, "That is up to you to discover." And assuredly, they do not lend their aid in the investigation. Not infrequently, while examining the applicant's nares, where the diagnosis was put-written in box car letters like the handwriting on the wall, I have asked him if he had ever had nasal catarrh, and he would cheerfully answer, "No." And when you exhibit the evidence of such chronicity they account for it by saying, "They caught a little cold last night."

Again the evidence of the importance in the examination of these special organs lies in the entailing of grave diseases from the slighter ones. These lesions, simple in the initiative, may not only disable the individual, but in time may be the causation

* Read before the Pacific Association of Railway Surgeons, San Francisco, August, 1909.

not infrequently of the various railway accidents, in which so much destruction occurs. It is not a far cry to say that an examiner by carelessly overlooking an incipient lesion of the eye and ear becomes indirectly responsible for some of these accidents.

Another feature, and one that is not usually given due consideration, is that a man with even a mild lesion of either of these organs, is less fitted for the proper completion of his duties. It is well known among oculists that a low error of refraction causes more headache than does a high one. A chronic recurrent tonsillitis certainly unfits an employee from anything like efficiency. A nasal catarrh from whatever source detracts from the possessor's credit as an employee.

From a purely selfish standpoint, it must follow that the less number of faulty men accepted, the less number of men you will be called upon to render services.

Seeing that the examination for these four areas is almost entirely within visual search, it becomes a matter of wonder that even gross lesions are so frequently overlooked. It may be due to sheer carelessness or probably of not looking at all. By no means does it require a specialist to make the necessary examination. It is much more readily done than getting a true anamnesis, and is far easier than percussing the throat, palpating the abdomen or searching the G.-U. field. I would not emphasize this if it were not that we have nearly every day evidence that if such examinations were made at all—they were merely cursory.

With this evidence I feel that it would not be wasted time to run over the various examinations—not that I may teach you anything new, but to recall the forgotten or neglected to your mind and to provoke an instructive discussion.

This paper primarily has to do with conditions other than those discovered by the 1st, 2nd, 3rd and 4th tests of the personal record. It is inferred that every examiner is particularly careful in taking the applicant's acuity of vision and hearing, though I should like to note in passing that it might not be amiss to have the examiners themselves tested for colors. This suggestion is born of an experience in which I had occasion to re-examine an employee, who had been accepted, and who failed to distinguish either red, blue, or green, one from the other.

Without question, the eye heads the list in the order of importance. It is by far the easiest of the four to examine, since every part of it is accessible to vision, and yet I am sure that it is the subject of thorough examination the most infrequently.

In the matter of examination it is best to adopt some routine that insures one of not overlooking any of the various structures. There are three partners of us in the office, and each of us make "railroad" examinations, and it is our habit to take the 4th test first, then the 2nd, and 3rd, then the 1st, following these with the special examination of the eye, ear, nose and throat. For our convenience, we have devised a form with everything required in a railroad examination printed on a slip. This slip enables us to jot down the various points as each part of the examination is concluded without loss

of time and permits of a neater record being made when time is not so pressing.

We preserve the order of the tests as above mentioned because it facilitates the work since the candidate can take the lantern part of the 2nd, 3rd and 1st tests without moving from the chair.

Our order of the special examinations does not differ materially from that of other examiners who endeavor to be careful. Beginning with the eye, it is our habit to inspect in the order named; the lids, puncta, lachrymal duct, and the conjunctiva, incidentally getting the ocular tension. While all pathologic conditions should be observed, the examiner should especially be on the lookout for trachoma and dacryocystitis. Left to my own decision, I would not accept an applicant with either affliction. Not only is he a constant source of infection in the first, but he is, at once, a care and an expense.

It seems singular that what is denied in one is permitted freely in other employees. This is especially illustrated in trachoma, which is most prevalent in the Japanese employees. These are, for most part, section or extra gang laborers, and are, according to the rules, exempt from medical examination. They do more with their utterly unhygienic habits to disseminate this disease than is realized by the Hospital Department.

Next the cornea and anterior chamber is examined, both by direct and oblique illumination, with the attention especially directed toward the nebulae and cicatrices of the so very prevalent foreign body injuries, most marked in the "experienced" applicant.

The iris and lens is examined with a +16. Without doubt a great many of the employees, who are now a source of care to the Hospital Department, would not now be in the service if the examiners had carefully inspected these very important structures. An examination of the present employees would result in the finding of an astonishing lot of chronic ailments, now demanding attention, that were present to some degree when they entered the service.

Only a few days ago, we had an employee for re-examination who had iridodialysis of the entire external quadrant, and no note had been taken of it whatever—a condition certainly visible to even a casual observer.

Examining the vitreous and fundus is not at all difficult and only takes a moment, and many times discloses things that ought to appear in personal record. Taking the field should be among the requirements of the examination.

Next the ear is examined and it only requires a glance to discover the condition of the external canal, and the membrana tympani, and but a moment longer to determine the patency of the eustachian tube. The application of the tuning fork test is not at all difficult and in case of doubt should be applied to aid in discovering lesions that may be as yet incipient.

The examination of the nose is readily done and should not be considered complete without a post

nasal inspection with the mirror. Extensive hypertrophies of the turbinates, nasal deflections and sinus involvement should always be noted; these pathologic conditions have a greater bearing on the effectiveness of the employee than usually credited. A man who has not a clear nasal breathing space, is the one who crosses your path as often or oftener than the habitually constipated individual. These things beget him his headache, blurred vision, and irritable temper, whereby he mixes his proper conception of things.

The examination of the throat ought to begin with the mouth, though most laryngologists pass it by as of no consequence. But in railway examinations, it seems most advisable that it be given a thorough inspection. While chronic stomatitis and Riggs diseases are not considered a bar to entering the service, they should at least be noted. For the throat proper, hypertrophic or diseased tonsils and chronic follicular pharyngitis seem to be the rule rather than the exception among railway employees, where, if a more rigid selection was practised, hospital expenses would be cut down materially, and the railway surgeons would have far less work.

As for the larynx itself, if its conditions were determined solely by the answers of the patient—its lesions would go entirely unnoticed. Tubercular and malignant conditions are a positive bar but how many surgeons take the trouble to look for them? When one calls to mind that, according to Lockard, nearly 35% of the pulmonary tuberculosis have laryngeal involvement, and that it is most common between the 20th and 40th years, it behooves the examiner to know if the applicant may or may not have a tubercular spot in this region. It is admitted that the larynx is more difficult of examination than either of the others, yet this should be no reason for passing it over without inspection.

In conclusion, the importance of the examination of the eye, ear, nose and throat in railway service lies in the following summary:

1. It is evident that the applicant must be examined—the anamnesis is untrustworthy.
2. Declining those who are afflicted will result in the employment of more efficient men.
3. The prevention of the dissemination of infection, i. e., trachoma and tuberculosis, etc.
4. Elimination of free care and treatment at the hands of the railway surgeon.
5. Cutting down the expense of the Hospital Department, so that funds may be applied toward protecting the health and comfort of those who contribute to the fund.
6. Finally there can be no more excuse for making hasty and incomplete examinations in the eye, ear, nose and throat than in any other part of the body.

Discussion.

Dr. Robert W. Miller, Los Angeles, discussing:

I am quite sure that the importance of this paper is by no means thoroughly appreciated. I am sorry that a number of the members of this Association have missed hearing the reading of this paper. The examination of the eye, ear and nose and the throat I find very important, especially in those patients suffering from chronic illnesses of the upper air passages, chronic ethmoiditis, etc., and these patients come in for operation a little later on. The tendency is to-day in the railroad offices to employ

the younger man; it is astonishing how the young man has come to the front, a large amount of clerical work is done by boys from 17 to 25 years of age, men even of the age of forty are considered as not very efficient in the line of clerical work. A great many of these men come in for examination within 90 days of the time of starting in their duties complaining of chronic suppurative otitis media and not nearly so many are found suffering from that as from eye strain. If this paper is to be given publication I hope it will be very carefully read and that you will lend your careful cooperation to the matter.

AMEBIASIS.

By J. D. LONG, Passed Assistant Surgeon, United States Public Health and Marine Hospital Service.

Since December 1, 1908, I have seen in the Marine Hospital and in the City of San Francisco one hundred fourteen cases of amebiasis (114).

The source of infection of these cases was as follows:

San Francisco and vicinity.....	38
Stockton and Sacramento, Cal.....	8
Colusa, California.....	1
Petaluma, California.....	1
Los Angeles, California.....	2
San Mateo, California.....	1
Galveston, Texas.....	1
Mexico.....	24
Philippine Islands.....	8
China.....	5
Territory of Hawaii.....	7
India.....	1
Jamaica and West Indies.....	1
Brazil.....	1
Tahiti.....	3
Unknown.....	12

Total.....114

Amebæ have been cultivated from the following sources by myself:

Lobos Creek water.

Water from drinking tank SS. Mariposa.

Stockton, California, city water supply.

Water from well 63d street and San Pablo avenue, Oakland, California.

From watercress growing on banks of Lobos Creek.

Amebæ have been cultivated from lettuce bought in an Oakland (California) market by former Acting Assistant Surgeon W. B. Wherry.

That some of these amebæ are pathogenic is evidenced by the following cases:

Case 1—Mr. Chief Engineer on Southern Pacific ferryboat Oakland, has been so employed for a number of years; lives at 63d street and San Pablo avenue, Oakland, California. The drinking water for his family comes from a well in his yard; this well is about thirty-five (35) feet deep and goes through a few feet of soil, ten (10) or twelve (12) feet of yellow clay, and then into gravel. He has been suffering from some obscure form of intestinal trouble, which did not respond to treatment for several years.

Examination of stools shows motile amebæ. Examination stomach contents shows marked diminution in Free HCl, and in total acidity. Low hemoglobin; red and white cells practically normal.

Diagnosis.—Amebiasis with secondary Achylia; is improving under treatment.

A specimen of water from the above mentioned well, showed after culturing, motile amebæ, monads, paramecii, and numerous other protozoæ and bacterial forms.

Case 2—Brogan, sailor, has been at Marine Hospital for some months under treatment for osteoarthritis of hip probably due to intestinal indigestion of long standing.

During his stay in hospital his stools have been frequently examined to determine what diet was best for his condition, and to observe whether there was any improvement in his intestinal condition. No evidences of amebæ were ever discovered.

About one month ago, he picked some water-cress on the banks of Lobos Creek, washed it and ate it. A little over two weeks after eating it, he reported to me at sick-call that he was having abdominal cramps and some diarrhoea. His stool on examination showed numerous motile amebæ, some blood, mucus, etc. He was told to go to the same locality, get some more of the water-cress, wash it just as he had done before, and bring it to me. He did so and motile amebæ were cultured from it.

In addition to the spread of the disease by means of infected water, the disease is undoubtedly being spread by vegetables, such as celery, lettuce, water-cress, strawberries, cabbage, etc.

I heard Dr. Hassler, the Chief Sanitary Inspector for the city, make the statement to the San Francisco Board of Health at one of its meetings, that fecal matter was being diluted and sprinkled over growing vegetables by certain vegetable gardeners in the city, that he had certain knowledge of it.

Further, Dr. J. T. Watkins, jail physician, stated at the same meeting that the sewage from the county jail was being used in the same manner by gardeners having truck patches near the jail. It was also stated at the same meeting that the persons having vegetable gardens on Islais Creek use the waters of the creek for irrigating their gardens, and that the sewer which drains practically the whole Mission district of the city empties into the creek and from thence into the bay.

The symptoms of the cases varied, some came in with bloody and mucous diarrhoea, others with alternating diarrhoea and constipation, others with constipation alone. In addition to one of the above, there was sometimes symptoms of heart troubles, rheumatic pains, backache, kidney troubles. In short, the symptoms were almost as various as the cases were numerous. At least thirty per cent (30%) would not have been recognized were it not for the fact that every patient's stool is examined, no matter what his symptoms may be.

The following observations were made:

Out of the total number of cases, those presenting symptoms of diarrhoea with mucus and blood numbered 28 or 24.5%. Constipation 33 or 28.8%. Alternating diarrhoea and constipation 53 or 46.4%. Hepatitis with enlargement of liver and leucocytosis varying from 10,000 to 18,000—42 or 36.8%. Myocarditis 29 or 25.4%. Abscess of liver 7 or 6.2%.

Of the total of seven, five died and two recovered,

four were of local origin and three of foreign origin. Two of these cases died as a result of the abscess, two died as a result of intestinal ulcers perforating, and one died of a sarcoma of the mediastinum. Mortality from abscess 28.6%.

Deficiency in or absence of Gastric HCl, 9 or 7.9%. In none of these cases could other evidences of gastric carcinoma be found, and all are living and well, or well on the way to recovery.

Nephritis 6 or 5.2%.

It would appear as if all of the above conditions could be secondary to amebiasis, as all these conditions were benefited by the treatment given for amebiasis, and did not as a rule respond to other methods of treatment unless the amebiasis was treated at the same time. In fact, one case of severe cardiac incompetency refused to respond, beyond a certain point, to the ordinary methods of treatment, until amebæ, hitherto unsuspected, were found and treatment instituted, when the patient's condition improved remarkably rapidly and he is now well on the way to recovery, and is up and about.

Double infections of typhoid fever and amebiasis were found in three cases, and double infections of malaria and amebiasis were found in eight cases, in one case there were present aestivo-autumnal malaria, uncinariasis and amebiasis.

Two cases showed amebæ in the urine with some degree of cystitis, one was due to an ulcer perforating into the bladder from the rectum with formation of recto-vesical fistula, in the other the avenue of infection of the bladder could not be determined.

In one case in which there was a coincident infection of *Cercomonas intestinalis* with the amebæ, the monads were observed to contain red blood cells, a phenomenon never before observed by the writer nor have I seen it reported.

In addition to the amebæ many cases contained other parasites, as many as six different classes of parasite being found in one patient, but ordinarily not more than two or three varieties were found. The other parasites or their ova found are as follows:

- Cercomonas intestinalis.*
- Lambliia intestinalis.*
- Uncinaria.*
- Oxyuris vermicularis.*
- Dibothryocephalus latus.*
- Taenia saginata.*
- Tricocephalus trichiuris.*
- Ascaris lumbricoides.*
- Strongyloides intestinalis.*

The differential diagnosis of amebiasis is not difficult, the presence of motile amebæ in the stools being sufficient.

The treatment consists of a careful regulation of diet, e. g. total exclusion of meat, flesh or fowl, and such other articles as, examination of the stools shows, are not being digested, digestion may be aided and fermentation controlled or checked by the use of Pancreatin in salol-coated capsules. Ipecac, solid extract, in salol-coated capsules is indicated where there is hepatitis with enlargement of liver and an increase of leucocytes over normal, also, to

assist in removing accumulations of mucus, and to promote the flow of bile, where it is markedly diminished, two grammes (2) are given once daily and will not cause emesis unless the capsules are not properly coated, or unless the patient has an idiosyncrasy for the drug.

Where there is myocarditis with irregular heart action digitalis is indicated, Nephritis calls for diuretics such as calomel, diuretin, etc. Osteoarthritis, most commonly of the spine, calls for mercurial inunctions and potassium iodide, with rest in bed with no pillow and with pads under cervical and lumbar spines to restore normal curvature. This complication is most annoying and many patients suffer constant pain, such as lumbago, sciatica, intercostal neuralgia, occipital headaches, and where there has been long-continued pressure on the nerves from osteo-arthritic deposits I have seen muscular atrophies. We have had several cases of asthma, due to pressure on the intercostal nerves by osteo-arthritic deposit in the dorsal spine, the asthma in these cases being of the inspiratory rather than the expiratory type; they have all recovered as the amebiasis improved.

The local treatment of amebiasis consists in high enemas, given in the knee chest position, beginning with a 1-8000 solution of quinin bisulphate and increasing gradually to 1-500, giving as much of the solution as the patient can retain. It should be held as long as possible. Enemas of the silver salts, thymol, potassium permanganate, etc., have been tried.

In cases where there is great and constant pain, gas formation, and where the bowel can be palpated and is distinctly thickened, an artificial anus should be made by bringing up a loop of ileum close to the ileo-cecal valve. This allows of irrigation of both large and small intestines, and places the large intestine, which is approaching gangrene, at rest.

This operation has been recently performed three times, twice by Dr. C. G. Levison of this city, and once by Acting Assistant Surgeon Alanson Weeks. All three cases were in a very grave condition prior to the operation. One is now up and about and back to normal weight, one other will probably die of a nephritis, his amebic condition is much improved and pain is gone, the third patient is improving also but was operated only a few days ago, hence no conclusion can be drawn as yet. The prognosis of amebiasis is good as far as saving life is concerned, unless there is abscess of the liver or an extensive ulcerative or gangrenous colitis; the prospect of complete cure is very bad, as the present methods of treatment do not seem to be adequate,—the patient recovers from the attack but the amebæ persist in the bowel for a long time, and relapse is frequent.

Conclusions.

(1.) Amebiasis is endemic in California and is disseminated by means of water and vegetables such as watercress, strawberries, celery, cabbage and lettuce, these substances being infected by the practice of sprinkling human fecal matter over vegetables and the soil for purposes of fertilization.

(2.) Amebiasis is a serious disease, the tendency of which is to become chronic and produce secondary complications such as diarrhoea, constipation, abscess of the liver, hepatitis, nephritis, myocarditis and osteo-arthritis.

(3.) The disease is difficult of diagnosis by ordinary methods, for the reason that the secondary complications are often so manifest as to overshadow the original disease, and further, even where the disease is suspected, it cannot be confirmed without careful and repeated examinations of a liquid stool produced by a saline, until living, motile amebæ are found.

(4.) The treatment while adequate to save life, in the majority of cases, is inadequate to effect a permanent cure.

CESAREAN SECTION WITH REPORT OF NINE CASES.*

By ALFRED BAKER SPALDING, M. D., San Francisco.

Although many leading obstetricians have sounded warnings lest we forget those time-honored and supposedly more conservative obstetrical procedures that have served women for generations in their hour of difficult labor, the spirit of surgical aggressiveness of the past twenty years has carried all before it, so that at the present moment it is difficult to discuss accurately the relative value of the operation of Cesarean section on the one hand and the operations of high forceps, version, pubiotomy and induction of premature labor on the other. It is so much a problem of personal experience and the application of principles which vary widely with each individual case that it is almost impossible to judge the operation per se. The statistics which have been compiled in relation to the mortality and morbidity following Cesarean section must be carefully studied in order to be understood. There is a certain mortality and morbidity after spontaneous labor that can not be avoided and the conditions which call for Cesarean section of necessity carry a much higher mortality and morbidity. In judging of the value of the operation therefore for any particular case, one must know the unavoidable mortality and morbidity of spontaneous labor, the mortality and morbidity of the particular abnormal labor under consideration when untreated and the mortality and morbidity of the condition when treated by all the various obstetrical procedures, including Cesarean section.

Several obstetrical surgeons have performed this operation a large number of times with a maternal mortality of less than 5%. Richardson, of Boston, after compiling carefully the experiences of many of our best operators, places a mortality of 5% for the conservative operation when performed before the onset of labor, but this increases rapidly when performed late in labor to 12% and 50%, according to the amount of exhaustion induced and the presence or absence of a beginning uterine infection. In ideal cases there should be no fetal mortality or morbidity. Operating without trained assistants and amid surroundings that are not ideal gives to the operation, however, a much higher ma-

* Read before the California Academy of Medicine, September 28, 1909.

ternal and fetal mortality. Moreover, it is not the operation itself that presents the greatest difficulties but the judgment needed to decide in each individual case the need for the operation.

Because the process of childbirth is deemed by so many to be a natural procedure and because in such a large percentage of cases nature is able to manage the confinement unaided the profession in general and the laity in particular are loth to encourage in a pregnant woman, that study and attention which is demanded of all other classes of practice; and the laity at times even resent as unnecessary interference the needful prophylactic examinations. It is only by carefully and completely examining every obstetrical patient that we can classify or pick out the patient who will need a Cesarean section. For illustration, I find, after reviewing the records of 900 private and clinic patients, that there is noted among the clinic patients a percentage of 8% of contracted pelvis and in private and hospital cases a percentage of 11.2-3%. In other words, the idea that here in California patients with contracted pelvises are a rarity is erroneous; the idea has gained ground because no one has made systematic examinations.

Again, for illustration, of thirty cases of contracted pelvis met with in the first 200 confinements in the University of California Hospital, 18, or 60%, had either a normal spontaneous labor or were delivered by low forceps with no maternal and only one fetal death due to prematurity. Of the remaining thirteen, however, there was one difficult breech extraction, 4 mid forceps, 4 high forceps, 1 induced labor and 2 Cesarean sections with a loss of 3 babies and one with serious head injury. The case of induced labor and two of the four cases of high forceps ended in death to the baby, while one baby delivered by high forceps was seriously injured. The loss of these infants was a sacrifice to obstetrical misjudgment as the babies saved by Cesarean section are a triumph for correct obstetrics.

At the present time the chief indication for the operation of Cesarean section is found in those cases of pelvic disproportion where the probability of a forcible extraction ending in death or cerebral damage to the child is imminent or where the mother is liable to serious injury or possible death by such forcible vaginal procedure. The day for craniotomy on a live child is over and symphysiotomy has almost ceased to be considered while the operation of high forceps, version and induced labor in cases of contracted pelvis are giving way more and more to Cesarean section in properly selected cases. The only operation at present that seems to meet with a growing favor is pubiotomy combined with forceps or version. Certain cases of placenta previa are by many surgeons treated by abdominal Cesarean section, although in general this method of treatment is still condemned by many obstetric surgeons. Personally, my experience has been such as to favor the operation in cases of complete placenta previa at or near term where the cervix is undilated, the mother and child in good condition

and suitable surroundings and a skilled operator at hand. The operation is also indicated in some cases of eclampsia, although probably better results can be had with the vaginal operation. Prolapse of the cord in cases of moderate pelvic contraction might also give indication for the operation as in fact any serious complication blocking labor when the life of the child is in danger.

In my series of cases I operated once for a large hematoma obstructing the pelvis for the following reasons: the hematoma was so extensive that all the vulvar and perineal region was in a condition of oedema from extreme pressure; in addition the fetal heart was 90, the patient was in a good hospital and facilities were present for handling successfully a Cesarean section. The mother and baby both lived, and the genital tract did not become infected, although the cavity of the hematoma became septic and in part necrotic. Succeeding the delivery by Cesarean section the hematoma was opened and packed with camphor phenol gauze and remained isolated from the peritoneum.

Operations more or less intricate have been devised for the extra peritoneal operation of Cesarean section in cases complicated by sepsis, although many operators still prefer in such condition the Poro operation of hysterectomy and when possible deliver per vaginam, even at very great risk to the child.

I desire to present to the Society my experience with nine cases of Cesarean section, five of which were operated upon by me and four seen in consultation. I present the report because in each case some obstetrical procedure such as premature labor, version, high forceps and pubiotomy or Cesarean section was necessary and these particular labors I believe would have terminated fatally for many of the babies and possibly some of the mothers had not Cesarean section been the operation of choice.

In this series all the mothers are alive and uninjured and all the babies are alive but one who was so toxic and immature from a complicating maternal endocarditis and nephritis that the operation can hardly be blamed for the loss.

Case 1—Primipara, 18 years of age, single.—Tuberculosis of the left hip when 2 years old; joint resected at that time; pelvis coxalgic; true conjugate 8 centimeters. Labor due November 1, 1905. Operation at Lane Hospital before the beginning of labor pains on November 13, 1905. The cervix was dilated to about 3 centimeters followed by Cesarean section and excision of the uterine ends of the tubes to cause sterility. Boy baby delivered in good condition weighing 8 pounds; biparietal diameter 9 centimeters. Patient suffered after the operation with an acute tubercular pneumonia but recovered and left the hospital with the baby one month later. Tubercle bacilli were found in the sputum.

Case 2—Primipara, 35 years old.—Dislocation of the right hip when five years old. Has not been able to use right leg since; leg shortened about 3". True conjugate 9 centimeters; over right sacro iliac synchondrosis is a projection of about $\frac{3}{4}$ " obliquely contracting the pelvis; external measurements of the pelvis normal except for evidences of rachitis. Patient was married a number of years and was very desirous of having a child. Labor

due December 30, 1907. Labor pains started at 11 p. m. December 30. Operation performed at the University of California Hospital, 11:30 a. m., December 31. Although the pains had been strong there was no indication that the head would enter the pelvic brim. On opening the uterus a most profuse hemorrhage occurred from incision through the placenta site. Female child in good condition weighing 7 pounds 10 ounces was delivered. The mother suffered afterwards with a stitch abscess from which a pure culture of diplococci was obtained. Before the wound closed a Pagenstacher stitch was discharged per vaginam. Patient with baby in good condition was discharged from the hospital in February, 1908.

Case 3—Primipara, 20 years of age, single. Pelvis simple flat, promontory easily felt; true conjugate 8 centimeters. On March 23 unsuccessful attempt was made to force the head of the child into brim of the pelvis by suprapubic pressure. Labor pains began March 26, 1908, and were regular but poor in character. On March 31 the cervix had dilated only to 3 centimeters, the head was partly in the brim, the pains were still irregular. On April 2 the pains were hard but regular. On April 5, 11 p. m., pains became regular and very hard, at 6:30 a. m. the position had changed to a breech which was now felt high above the brim. At 11:30 a. m. the breech was still above the brim, cervix dilated $9\frac{1}{2}$ centimeters, membranes unruptured. Mother and baby were in good condition and it was judged safest to deliver by Cesarean section. I did not see the patient until the morning of April 6, although I had previously carefully measured the pelvis and classified the patient as a probable case for Cesarean section. Operation at the University of California Hospital. Hemorrhage very slight. There was considerable difficulty in reviving the child due to an excess of anesthesia, otherwise both mother and child had an uneventful recovery.

Case 4—Consultation May 25, 1908.—Primipara, age 30. Normal pelvis. Sudden profuse hemorrhage with first labor pain. On vaginal examination cervix was found thick, 2 centimeters dilated with the placenta overlying the internal os. Mother and baby were in good condition and in a suitable hospital. Operation was advised and immediately performed by Dr. Florence Ward. Girl baby in good condition was delivered and recovery for both was uneventful. In this patient seven years previously one ovary and tube had been removed and the uterus stitched to the abdominal wall. At the time of operation there was no evidence of the previous hysterectomy.

Case 5—Consultation October, 17, 1908. Three-para.—First labor lasted several days and was terminated with forceps; the baby stillborn. Second labor lasted thirty-six hours; terminated with forceps; baby injured so that it died several weeks after delivery. Pelvis justinor flat, true conjugate between $7\frac{1}{2}$ and 8 centimeters. Recommended that Cesarean section be performed about November 7. On November 9 Dr. Somers operated. Girl baby weighing 7 pounds, 10 ounces was delivered in good condition, biparietal diameter 10 centimeters. Mother and baby recovered.

Case 6—Consultation October 26, 1908. Three-para.—First labor lasted three days, terminated by forceps and embryotomy, perineum lacerated into the rectum. Second labor premature at the seventh month lasted 36 hours, terminated by forceps, baby stillborn. Patient in labor at the present time; child lying transversely; membranes unruptured; pelvis simple flat type; true conjugate 7 centimeters. Immediate operation advised. Operation by Dr. Wakefield. Profuse hemorrhage, from incision through placenta site. Girl baby delivered in good condition, both recovered without complications.

Case 7—Primipara.—Eighteen years of age. Patient attended in labor from Dispensary of the San Francisco maternity by Drs. Wrenn and Mahon. Labor progressed normally until head appeared on the perineum. This was at 11 a. m. Then a small tumor which was thought to be a hernia appeared in the left labia. This rapidly enlarged involving the vulva and perineum and causing the child's head to recede to the pelvic brim. Patient was etherized and hurried to the University of California Hospital where I first saw her. Operation March 29, 1909. Both mother and baby were in poor condition at the time of operation, maternal pulse 130, fetal heart 90. After a rapid abdominal extraction the pelvic hematoma was incised, clots removed and cavity packed with camphor phenol gauze. The baby was with great difficulty revived but was discharged with the mother in good condition on April 26.

Case 8—Primipara, 24 years old.—Pelvis was rachitic, justinor, kypho-scoliotic. True conjugate less than 8 centimeters. Chronic nephritis and chronic endocarditis, (aortic stenosis). Labor due June 20, 1909. On June 20, after ten and a half hours labor pains without engagement of presenting part, an immature baby was delivered alive by Cesarean section. Biparietal diameter 8 centimeters. The baby died about one-half hour after birth of respiratory failure. Mother recovered without complication and discharged July 16.

Case 9—Consultation, July 13, 1909. Primipara, 35 years of age.—Patient in labor. Two weeks previously had had sharp hemorrhage which had returned with the onset of labor pains much more severely. On examination the placenta was found covering the cervix completely, which was about 2 centimeters dilated. The fetal heart was 144, strong. The mother's pulse 72. Patient in a hospital and in good condition. Advised immediate Cesarean section. Operation by Dr. Florence Ward. Considerable hemorrhage from placenta site, which was easily controlled. Placenta was adherent to lower uterine segment lying over the cervix. Baby deeply asphyxiated but revived in about 25 minutes with hot and cold baths. Mother and baby recovered without complications.

From these experiences and from a review of the recent literature it appears to me that the field for the operation is a larger one than is at present acknowledged. The operation will without doubt in the future, as possibly it has in the past, be performed in inappropriate cases and will when attempted without due care and suitable assistants fail to attain the best results. I believe a fair test of labor in most primiparae is necessary and without harm if sepsis and pelvic injury be avoided. It is important that the time of anesthesia be short because of the effect on the child. This calls for a skilled anesthetist as well as a rapid operator and careful repair must be instituted to avoid the danger of future uterine rupture. In addition the child when delivered must be entrusted to a skilled assistant or else the very object for which the operation is performed will in some cases be defeated.

Discussion.

Dr. W. Francis B. Wakefield: I think with Dr. Spalding that the field for Cesarean section will gradually increase as we habitually study our cases more carefully. I believe that every one doing obstetrics should study each individual case carefully, measuring each pelvis accurately, determining its relation to the size of the foetal head and pelvic inlet, and if this is done I believe we will arrive at very definite conclusions and be able to perform

Cesarean sections with definite indications. I believe that Cesarean section should always be performed where we have a true conjugate of from $7\frac{1}{2}$ to 8 cm., $7\frac{1}{2}$ in the simple contracted and 8 in the general contracted pelvis. It is not in these cases that our difficulty arises however, it is in the cases that are just a little larger, perhaps $8\frac{1}{2}$ cm., and where we have relative disproportion between the head and pelvis. Then we have to decide between one of several maneuvers. One would be to induce premature labor; another, Cesarean section after a test of labor; another, extract the child by means of high forceps; and another, to perform pubiotomy, with or without mechanical assistance. It seems to me that the decision between these will depend upon a great many factors. In the first place, I do not believe that everybody should do Cesarean sections. I believe that if the case is in the hands of a man who is skilled in abdominal surgery, or if such a man can be brought into the case to do the Cesarean section, then Cesarean section is the operation of choice after a fair test of labor. On the other hand, if the condition of the patient is such that abdominal operation would not be advisable under ordinary circumstances, then, it seems to me, after a fair test of labor, that pubiotomy assisted by forceps would be the operation of choice. I believe that pubiotomy has come to stay. I believe that it is a relatively simple operation; that, as we perform it more frequently, we will find its technic simplified, and that it adds very little to the mother's general risk and undoubtedly gives a better opportunity to save the lives of many children that would otherwise be lost. Personally I would prefer Cesarean section to pubiotomy but I believe that under most circumstances, in the hands of the general surgeon and in country practice and where it is not possible to get the patient into the environment for laparotomy, that pubiotomy is going to open up an important field. I believe that the increased mortality that has been accrued from Cesarean section has been more from sepsis than from exhaustion. Where we have a pelvis partially contracted the technic should be scrupulously carried out during examinations, etc., in order that no infection shall have entered the uterus. Usually when we go to these cases Cesarean section has not been suggested to the minds of the accoucheur and the examinations have been made frequently and oftentimes under not very exact sepsis and the result is that more or less infection has gotten into the vaginal vault. I repeat that the majority of these cases die from sepsis rather than exhaustion which makes these late Cesarean operations have such a large mortality.

Dr. A. B. Spalding: I have never done a pubiotomy for the reason that the Cesarean section patient seems to me to have a less complicated recovery ahead of her. It is stated that there is no great danger from the pubiotomy. You simply take a long, specially curved needle, pass it close to the posterior surface of the pubic bone from about the spine to the pubes down and out to the middle of the labia majora. The urethra is pulled to the other side by an assistant. Then with a chainsaw the bone is rapidly severed, the pelvis opens. It separates for 5 cm. and allows a forceps delivery or version. In Dr. Williams' series of cases nearly every case reported was more or less severely lacerated and in one case the bladder was injured, which you should not get in a Cesarean section. They used to bandage the patients and put them in tight jackets, but that is not done any more. The patients seem to be benefited when there is not a too tight union of the symphysis because of the soft cartilaginous union making subsequent delivery of the head easier. This operation is easier than a Cesarean but the result to my mind is not so perfect. It has, however, a field distinct from Cesarean section, namely, when

the contraction of the pelvis is at the outlet in place of at the brim as in a funnel-shape pelvis.

GUNSHOT WOUND OF THE HEART WITH RECOVERY.*

By C. J. TEASS, M. D., Kennett.

The first successful operation for relief following a gunshot wound of the heart was performed in 1897 by A. G. Podres, who on the second day made a skin and bone flap containing the left lower portion of the sternum as well as the cartilages of the third, fourth, fifth and sixth ribs and having a lateral base. Upon opening the pericardium it was seen that the wound of the right ventricle, about one cm. long, had become closed; so he did not attempt to suture it, but did make more than ten punctures with a needle, hoping to locate the bullet in the heart wall, but as this was without avail, the heart was taken up and carefully palpated with the hands, but no bullet was found. When last heard from the patient's condition continued to be excellent.

But as far back as 1815 we have the autopsy findings by "Latour" of a soldier who was shot several years previously and had died from another disease. At autopsy bullet was found encapsulated in right ventricle near apex, partly covered by pericardium and partly resting on septum medium.

Again in 1849 H. Suckow found bullet in right ventricle cavity many years after the wound was inflicted.

And again in 1861 G. B. Balch reported a case in which a bullet remained twenty years in the wall of the right ventricle.

A few more interesting cases could be reported with which I will not take up your time. Suffice it to say that it seems rather strange to us at this hour of surgical progress that such a master surgeon of his day as Billroth should sound the warning: "Let no man who hopes to retain the respect of his medical brethren dare to operate on the human heart." For we naturally think in attempting to look back some twenty years that so bold an operator would have taken cognizance of such autopsy findings which were quite sufficient to definitely establish the important fact that the heart muscle could be quite severely damaged without a necessarily fatal issue, and that he would have dared to venture where others might follow for the relief of direct injury to the heart muscle. From a diligent search of the literature I have been able to gather thirteen authenticated cases (exclusive of my own) of gunshot wounds of the heart with recovery following an operation for their relief, and with the exception of the one already referred to by Podres in 1897, they all are of recent record, beginning in 1902 when Launay resected costal cartilages of fourth, fifth and sixth ribs and sutured anterior wound of left ventricle 2 cm. from apex. The wound of exit was sutured with great difficulty, after which all hemorrhage ceased. After cleansing pericardium drain

* Read before the Pacific Association of Railway Surgeons, San Francisco, August, 1909.

was inserted in lower portion and was removed in forty-eight hours. Auscultation of the heart revealed nothing abnormal after ten days.

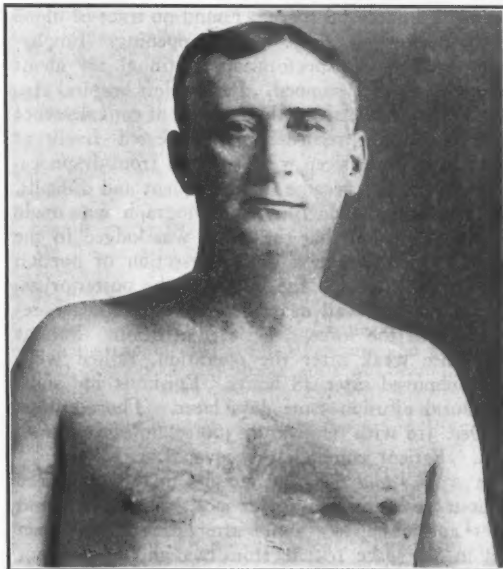
On September 10th, 1902, Noll resected portion of fifth rib thirty minutes after girl had inflicted a pistol wound with suicidal intent. Opened the pericardium and sutured a wound of left ventricle, applied a drainage of sterile gauze in pericardium, inserted a large rubber drain in pleural sac. The pericardial drain was removed after twenty-four hours, the pleural drain was removed on the 20th day after the operation. It had been changed daily beginning with the fourth day. An unpleasant complication seventeen days after the operation was a circumscribed empyema which was promptly drained, and on the 15th of November patient was entirely well, left hospital and performed the customary housework.

On September 12th, 1903, Manteuffel, nine hours after patient was shot, resected fourth, fifth, sixth and seventh costal cartilages, and after opening the pericardium sutured with silk, wound of right ventricle 6 cm. from apex, for during diastole a blood fountain $\frac{1}{2}$ m. high emanated from the wound. Bullet was found to be located in the posterior wall of right ventricle 1 cm. removed from the coronaria. Two fixation sutures were applied and then an incision down to the missile with subsequent removal. While attempting to remove it he scarcely prevented the bullet from falling into the ventricle. After suturing drainage was inserted in upper section of wound. The course of the patient was good at first, then a serous pericarditis set in, necessitating the removal of one of the sutures; discharge of abundant serous fluid; no further discharge after September 23d. Patient got up October 2d; wound was closed by October 25th. Patient was kept in clinic under observation until February 15th, 1904.

On October 10th, 1903, Tuffier operated on a young officer who had been shot March 10th, 1903, and in whom the radiograph showed the ball lodged in the wall of the left auricle. It stuck for the greater portion outside of the auricular wall. After exposure Tuffier grasped the bullet with forceps and extracted it. No hemorrhage followed. Inserted drain and closed wound. Perfect recovery.

On June 23d, 1904, Schubert resected 6 cm. of fourth rib of a young man who had attempted suicide half an hour previously. After opening the pericardium Schubert removed the blood with a sponge and then sutured with catgut the anterior and posterior gunshot wounds of the right ventricle, as well as an incised wound of anterior wall of left ventricle, which was made upon opening the pericardium. Gradual recovery, patient being dismissed August 18th. Bullet had undoubtedly passed through ventricular septum of heart.

In 1905 Picque resected large portion of fourth, fifth and sixth ribs of a girl who had shot herself in the heart while in a fit of despondency. Upon exposure a large opening was seen in the pericardium, and after removal of clots, a penetrated wound at the base of the left ventricle, near the inter-ventricular septum was observed. No wound of exit, hence the ball was evidently lodged in the wall of the



heart. Decided not to explore further, nor to suture the heart wound, as no bleeding was manifest. He installed a gauze drain in the pericardium. Medical examination of the patient made October 10th by Talamon showed an absolutely normal heart.

On June 21st, 1905, Goebell separated the third, fourth and fifth costal cartilages, severed the sternum with straight chisel, and severed the left sixth and seventh costal cartilages, sutured wound of apex of lung, and left ventricle about 2 cm. below the horizontal coronary artery branch, and posterior wound about 3 cm. further posteriorly. Drainage in lower angle of wound. On the 25th the bullet was extracted beneath the left scapula. Dismissed entirely cured August 10th, 1905.

In 1906 Wilms reports a case of gunshot wound of the heart in which the bullet entered the left ventricle at about the middle of its anterior surface and came out at the corresponding point, posteriorly. Made a long intercostal incision two hours after the injury was inflicted and sutured the entrance and exit orifice of the heart with three stitches each. The same was done with the entrance and exit wounds of the left lower lobe of the lung, then the pericardium was sutured and the thorax completely closed, no tampon or drainage. Bleeding had been considerable in the case, one and a quarter liters of blood being found in the pleural cavity and pericardium. Good recovery.

In 1907 Sutton made a flap of sternum and left fourth and fifth cartilages; hinge on right thirty hours after a gunshot wound of chest, and placed three silk sutures in wound of left ventricle, with complete recovery.

On July 2d, 1907, A. Guinard made an exploratory superumbilical incision, as he suspected a lesion of the stomach. The entrance orifice of the bullet was situated exactly four fingers' width to the left

of the spinous spophysis of the vertebral column in the ninth intercostal space. Found no trace of blood in the peritoneal cavity. Closed opening. Emphysema and blood expectoration continual for about twelve days, then stopped. Patient left hospital August 15th. After about three weeks of convalescence he experienced precordial pain, sweated freely at nights, could not sleep well, suffered from dyspnoea. The respirations became more frequent and difficult. On November 22d, 1907, a radiograph was made and it was found that the bullet was lodged in the heart. Operation next day. Resection of portion of 6th rib. Located the bullet in the posterior aspect of the left wall near the apex of the heart, removal with the forceps, pericardial drain. Patient was quite weak after the operation, rallied well, drain removed after 48 hours. Epistaxis and signs of pleural effusion some days later. Thoracentesis on Dec. 3rd with removal of 360 c.c.m. of yellowish fluid. Patient completely recovered.

In 1908 Vidal made an incision in left 3rd space without resecting rib under positive pressure and ether anesthesia $1\frac{1}{4}$ hours after patient had been shot in 4th space 10 cm. from median line and put two sutures in wound of left ventricle with no drainage.

In 1909 Reimann resected left 4th and 5th cartilages for a gunshot wound perforating 3rd rib of a boy 20 years of age, removed 100 c.c. of blood from pericardium and placed 5 silk sutures in wound of left ventricle. No drainage. Was compelled to aspirate 12 days later for serous pleuritis.

On May 16th, 1908, Mr. Timothy Foley, constable, age 47, while in a dispute with his deputy, received a ball from a 38 caliber revolver, two inches internal to and $\frac{3}{4}$ -inch below left nipple. He was in a stooping position, endeavoring to grab the deputy's revolver with his left hand, when shot. So the bullet took a course downwards, backwards and to the right. In its course, passing through the upper border of 6th c.c. the pericardial sac, right ventricle of heart, and inner border of right lung, and as its force was nearly spent when striking the 7th rib near its articulation, with the vertebrae, it simply turned turtle and lay beneath the skin $2\frac{1}{2}$ " to the right of 7th vertebra. Dr. J. P. Sandholdt reached the patient within a few minutes and found him sitting in a chair, but very weak from the shock, so he had him at once placed on a stretcher and brought to the M. C. C.'s hospital where I first examined him in the operating room. The bullet was easily extracted without much pain, but I remember my surprise at finding it on the right side of his spine as I could not understand how it had escaped the heart or the aorta in the course it had taken. But as pulse was full and regular and as the dullness over the cardiac area had not increased from what I had known it to be, I, for the time naturally thought the ball could not have passed through the heart, but on the second day patient began to suffer intense precordial pain, and this rapidly increased until early on the morning of the third day when I found him laboring greatly for breath, and he exclaimed, "Doctor, you will have to tap me here (pointing to his pericardial region) for I am all fill-



ing up." And to be sure upon examination I found the area of cardiac dullness had greatly increased. So I decided to open up his pericardial sac at once, by means of Schleisch's infiltration anesthesia, as his condition was such as not to warrant a general anesthetic. A semi-lunar incision was made over the fifth c.c. with its base at the sternum, the cartilage was resected, and when reaching the fat area over the pericardium a small amount of pus was encountered. But fortunately I soon discovered a black hair lying on the sac, which had been carried by the bullet from his chest. So, now being sure, that I had the cause of this first complication, rapidly dissected out the contaminated fat, and then began my search for the bullet wound of the sac which was discovered with some difficulty, as a small globule of fat had effectively plugged it and now, upon rapidly opening the sac, I was surprised to receive a spurt of dark sero-sanguinous fluid ejected against my face; and thereafter, at each pulsation of the heart, a certain quantity of fluid would be ejected from the sac which had formed from an intense pericarditis caused by the passage of the bullet and by the blood that had leaked into it. I now cleansed the sac thoroughly by mopping it out with sterile gauze so that the bullet wounds of the heart could plainly be seen about an inch from the apex over the right ventricle. These wounds were also thoroughly sponged with the gauze; but as there was no oozing from the chamber of the heart I could see no rational excuse for suturing its wounds, so contented myself with double drainage of the sac with tube and gauze, and kept the edges of the pericardial wound permanently retracted by placing silkworm gut sutures from within and through the corresponding side of the skin. Removed drain and sutures on the 7th day.

Patient left his bed for the first time on June 19th, and made a complete recovery with the exception of slow necrosis of the 6th costal cartilage caused by the bullet making a notch in its upper border, and after thoroughly curetting it on July 6th, 1908; Aug. 12th, 1908, and Sept. 3rd, 1908, and a faithful trial of the injection of Bi Paste with no permanent benefit, he consented to take ether and allow me to dissect out the entire cartilage, which I did at the Lane Hospital June 21, 1909.

Will add that Mr. Foley had previously to his being shot gone through three distinct attacks of acute articular rheumatism, and as he had worked in mines most all his life, had developed an athlete's heart and emphysema. Also four days previously to having been shot, he was in San Francisco helping to celebrate the coming of the Atlantic Squadron, and returned home with an acute attack of indigestion with much tympany which greatly aggravated his suffering for the first few days by pressing up against his diaphragm.

The points that I would emphasize in my own case are:

First—That the operation saved the patient's life, not only by draining his pericardial sac and thus relieving him of imminent danger, but also by removing a local source of infection which ultimately would have been taken for a general septicaemia of the entire bullet wound tract and consequently no operation for its relief would have been considered.

Second—That it is a waste of time to attempt to check a beginning necrosis of a costal cartilage by means of curettage for the only practical procedure is to fully expose the cartilage to view and by means of a knife make a clean cut of the cartilage some distance from its diseased portion.

Third—That if I were to do the operation again I would make a flap containing the cartilage and having its base externally.

Dr. A. W. Morton, discussing:

There are very few of us who have had such a case as this one reported by Dr. Teass. I notice in the reports which he has quoted that there were 14 cases all done by 14 different operators and the thing which impresses my mind is this, that as these are all emergency cases each man should formulate an idea as to the best method of exploring the heart. The article mentioned by Dr. Teass fully explains this and shows the advantage of lifting the cartilages of the ribs and turning to the flap. One of the great dangers is that of collapse of the lung but when we get the positive and negative pressure which is being used in Germany we will encounter less difficulty in operating on the heart or the lung. The case which Dr. Teass has mentioned is certainly a very interesting one and as I judge from his report the principal thing he had to do was to open up and drain as he had an infection, but the most of the cases are very likely to need immediate operation on account of the hemorrhage which is more apt to occur in the other forms of heart injuries such as stab wounds.

Dr. Samuel Iglick, Oroville, discussing:

In regard to the difficulty of treating these cases of necroses of the cartilage in that region I will cite an interesting case which I had about 8 years ago at Downieville. An underground miner came to the office with the history of having a spilling fall on him with one end striking his chest. He had suffered from a chronic abscess and a chronic discharge

in that locality. One physician had treated him but had not cured him. After probing the lung in all directions I determined that there was some infection of the cartilage, between the cartilage and the sternum. It was the 4th costal cartilage. I attempted the operation which Dr. Teass has done in his case and finally decided to trephine the sternum. I explored the pericardium and thought I had excised a considerable proportion of the necrosed area. The wound healed but the chronic discharge kept up and I could never get the consent of the patient to operate subsequently. This went on until the patient died.

Dr. T. C. McCleave, Berkeley, discussing:

Dr. Teass is to be congratulated upon the success of his case. It is of interest that Dr. L. C. Lane told me that some 50 years ago his uncle, Dr. Cooper, had removed successfully from the pericardium a fragment of metal from a grape shot which had penetrated the pericardium and at operation a portion of this grape shot was found. I do not know that that case ever got into the literature but it is interesting to know that it was done as much as probably 50 years ago by a San Francisco man.

Dr. David Powell, Marysville, discussing:

I remember a very celebrated case which happened in San Francisco and that was the shooting of Colonel — by — on an Oakland boat. I was then a student in Cooper College. The autopsy in that case revealed gunshot wound of the heart. Colonel C — lived nearly 24 hours and probably he might have recovered had he fallen into the hands of Dr. Teass. I remember that the autopsy showed that the blood had passed through the right auricle of the heart, small blood clots had formed so as to enable the weak circulation to keep up life for 48 hours. Now it is possible that if that case had been operated upon promptly the result might have been different. My experience has been mostly with the autopsy of these cases. I have seen some serious injuries of the heart that it is possible might have been relieved by operation.

Dr. Teass, discussing:

I wish to correct one impression which Dr. Morton has with regard to the infection. The pericardium in this case was not infected. The fat on the outside covering of the pericardium only was infected and there was intense pericarditis but not an infected pericarditis.

SOME PHASES IN THE HANDLING OF TUBERCULOUS PATIENTS.*

By GEORGE H. EVANS, M. D., San Francisco.

So much is constantly being contributed to the rapidly accumulating mass of tuberculosis literature, that it would seem an act of supererogation to add anything to this subject, were it not for the fact that, paradoxical though it may be, the enormous mass of this literature and the great diversity of opinion therein contained, have served to confuse the medical mind. The therapeutic market is congested with sure-cure products, whose exploiters are no less extravagant with their claims than are the over-enthusiastic advocates of this or that particular form of treatment. The result is that the busy practitioner, utterly confused by the bewildering mass of literature, scientific and commercial, too often follows false therapeutic gods, with resulting disaster to those who have been placed in his charge.

* Read before the Fresno County Medical Society, November 2, 1909.

It is time for a sane and conservative review of the situation, and, in this attitude, let us consider for a moment, in the light of what has been actually accomplished, the curability of tuberculosis.

Admitting, as we must, that well conducted tuberculosis sanatoriums offer the best opportunities for successful treatment, and recognizing the general reliability of compiled statistics covering a large mass of clinical material, we are met by the somewhat startling fact, that, aside from a few private sanatoriums where as high as from 80% to 93% of incipient cases recover, in seven of the largest and best known public sanatoriums in this country, less than 50% of the incipient cases are discharged "apparently cured." The proportion of these that subsequently relapse is largely a matter of conjecture. This statement is made because it throws an interesting light on the unreliability of reports which are unduly tempered by an optimism that is placing the curability of tuberculosis in a false light before the profession and the laymen. I do not wish to take the position of belittling the great achievement of the tuberculosis specialist in the magnificent results produced in this field. The great prevalence of this disease in relation to the death rate, great though the latter is; the revelations of the autopsy table; prove conclusively the curability of tuberculosis. I do maintain, however, that a danger lurks in an altogether too prevalent opinion that is fostered largely by advocates of exclusive methods of treatment, to the effect that certain particular remedies are in themselves specifics. I have at present under my care a number of patients, hopeless—as far as prognosis is concerned, victims to this unreasonable principle of specific cure. Though an ardent disciple of the great value of tuberculin therapy, judiciously applied in properly selected cases, and with an ever-increasing enthusiasm regarding its effects, as my experience and opportunities for clinical observation increase, I consider it my duty to sound the note of warning and to caution the general practitioner, in whose hands the majority of tuberculous sufferers must fall, against the baneful results that must ensue, on the application of any so-called specific method of treatment, to the neglect of intelligent daily supervision of his patient along the lines of hygiene, rest and nutrition.

A considerable acquaintance with tuberculosis sanatoriums in this country and abroad in every conceivable climate has convinced me that the results attained are in direct proportion to the intelligence and zeal displayed, in the daily painstaking supervision by the medical man trained to this work, rather than to any climatic feature peculiar to the locality, or to any one therapeutic theory that is therein exploited. I am certain that the most intelligent advocates of tuberculin therapy the world over will attest the accuracy of this declaration. This statement does not detract from the value of tuberculin therapy when applied with a recognition of the fact that it is only one of the medical agents, placed in the hands of the physician. The attempt to cure diphtheria with antitoxin without regard to

the principles of rest, cleanliness and nutrition, would prove as pernicious as a reliance on mercury and iodine in the treatment of syphilis, ignoring all efforts directed toward the attainment of a normal metabolic balance.

Granting these fundamental principles and recognizing that tuberculosis is a disease of the masses, and carries with it great economic and sociologic problems, the responsibility of the general practitioner stands strongly forth. It will be impossible to refer more than a small proportion of such cases to the tuberculosis specialist. The great majority of them present problems that must be solved by the family doctor, and largely on his success or failure in this respect will society assign his usefulness. Asked what is the first duty of the physician when placed in the relation of attendant to a tuberculous patient, I should unhesitatingly say, the protection of those dependent upon him, and those with whom he comes in contact. Looked at in the higher humanitarian light, the cure of the individual is relatively insignificant compared to the prevention of the disease in tens and probably hundreds of others whose physical wellbeing is jeopardized. Time will not permit of a lengthy consideration of prophylaxis. Anything short of the absolute destruction of sputum, by collecting it in destructible receptacles and burning it, is in our present knowledge of the viability of the tubercle bacillus nothing short of criminal. The altogether too prevalent methods of using such disinfectants as bichlorid of mercury and solutions of carbolic acid are utterly inadequate for a comprehensive and thorough regime of prophylaxis. Every inmate of the home of the tuberculous patient should be submitted to a careful examination, in order to discover instances of incipient disease. Hygienic methods of living should be rigorously instituted, whereby the physical resistance of each should be increased to the point of overcoming predisposition and resisting implantation.

The care of the tuberculous patient, aside from the application of those great fundamental principles of treatment, comprised in out-of-door living, nutrition, the proper correlation of rest and exercise, etc., must depend for a successful issue on the ability of the attendant to individualize. Failure is largely due to the application of a set of therapeutic principles, without taking into consideration individual type and temperament, stage and duration of the disease, the influence of occupation, method of living, and ancestry, all factors through which a thorough knowledge of the actual resistance of the individual must be obtained. It is as important to recognize the fact that a certain type of individual, if sent to a sanatorium, will assuredly become a victim to that very serious and almost hopeless complication, nostalgia, as it is to realize that the only hope of success in the treatment of another type, whose ability to co-operate can not be developed under the influences of home surroundings, is to place him under a daily hygienic discipline which can only be properly carried out under rigid institutional treatment.

Primarily then we must divide our patients into two large classes: those suitable for home treatment and those who require institutional treatment. The question of suitable climate can be promptly disposed of in the light of the results which are being obtained everywhere, where physicians are treating their patients with thoughtful detail. I would tersely state that the question of climate is quantitative rather than qualitative. The patient who lives out-of-doors in this community under the daily watchful care of his medical attendant, whose every hour of rest and activity is zealously supervised, whose every detail of treatment, hygienic and medicinal, is applied with an eye single to the development of the greatest amount of physical resistance to his disease, has opportunity of recovery unattainable elsewhere, without this thorough individual supervision. The advice still so frequently given of sending these sufferers to the mountains or to arid districts to work out their salvation; by an implicit and unreasoning faith in that fetish called climate, unaided by intelligent medical care is responsible for a mortality that is an awful reflection on the judgment of the medical man.

I would therefore submit, as an axiom, that the first need of the tuberculosis patient is the constant personal supervision of a medical attendant, sufficiently interested and trained in the study of this disease, to supply such requirement. I do not mean by this, that these patients must necessarily be sent to the tuberculosis specialist. As has been stated, the majority of them must be cared for by their family physicians and if this large class is to receive the care that society has a right to demand should be accorded them, then there must exist in every community sufficiently large to present tuberculosis as an acute problem, men qualified for this work. This demand must also find expression in a manner that will cause our medical schools to equip chairs for the proper teaching of this subject.

The second axiom that I would propose is, that absolute candor should exist between physician and patient. The patient should be aware of the diagnosis in order that the co-operation necessary to attain success can be secured. I fully realize the popular dissenting voice to this proposition. A considerable experience has convinced me of two things: first, the bad effect of this knowledge on the optimism of the patient has been absurdly exaggerated; second, the path of dissimulation on the part of the medical attendant toward his tuberculous patient is strewn by the graves of more victims to this disease than can be laid at the door of any other error in the handling of these patients. Without a truthful statement to the patient, it is impossible to expect from him that co-operation and enthusiastic attention to the minutæ of treatment necessary for success.

The institution of treatment following a thorough recognition of the above-named principles, places the patient under favorable conditions for cure otherwise unattainable.

The active treatment comprises, first of all, and most important, an adaptation of three essentials,

namely, out-of-door living, rest, and abundant nutrition. Out-of-door living implies constant living in the open air. Any modification of this decreases its efficiency and success will largely depend on the literal acceptance of this principle. Various devices have been prepared to adapt this mode of living to the home treatment, and the ingenuity of the attendant must in each case meet the exigency of the situation. Most of the tent devices are faulty in construction and do not admit of the greatest amount of open air. The preference of the writer is the porch, open on three sides, with curtains to be used only as a protection from storm. The sleeping room, even with wide open windows is not adequate for the fulfillment of this principle. If conviction as to the truth of this statement is necessary, one needs but to remove the patient suffering from high fever and night-sweats from the apparently airy room into the open air. Open air is a general stimulant, but particularly to the nervous and digestive systems. If one contemplates the enormous burden the digestive system has been able in many instances successfully to bear, by placing patients out-of-doors and submitting them to a process of overfeeding, now happily generally less popular, its virtue as a stimulant of the digestive system needs no further emphasis.

Rest, absolute, physical and mental, is necessary to meet certain febrile, circulatory and nervous disturbances. Insufficient emphasis has been given to this point by most writers on the subject. The instability of temperature, which is so prominent in the tuberculous patient, calls for the most careful daily supervision of his activity. Herein the average medical attendant usually fails. To allow any modification of complete rest in bed to the febrile tuberculous patient, is in my opinion as irrational as to adopt an ambulant form of treatment for our typhoid fever patients. It is here that the moral and mental attitude of the physician toward his patient finds its greatest activity, for this rest must in many instances be long continued, being prolonged oftentimes for several months. It is frequently found difficult to persuade the patient and his relatives of the great importance of such restriction. Aside from the instability of temperature, there exist a peculiar instability of the heart, due to changes in the heart muscle, the result of toxemia, and a disturbance of its nervous mechanism due to adhesions of the vagus, or pressure from enlarged glands. As the heart is the most important organ to be considered from the prognostic standpoint, every effort should be made to conserve its function, whereby it may be able to withstand the strain upon its mechanism. Complete bodily rest should therefore be rigidly observed until an arrest of the toxemia, as evidenced by a return of normal temperature and pulse, has been accomplished. Then and not until then, gradual increase in bodily activity should be cautiously instituted, finally approaching to full measure of work.

Abundant nutrition must be accorded, with an intelligent conception of the nutritive value of food products as a basis. A popular opinion has pre-

ailed that a process of forced feeding, by means of large quantities of milk and raw eggs, is necessary for a cure, or even possesses specific curative properties. Digestive disturbances thus produced have frequently been found to have inflicted irreparable damage through these efforts at hyper-nutrition. One is impressed by the data presented by Prof. Irving Fisher to the International Tuberculosis Congress in Washington last year, of reports from 95 of the leading sanatoriums of the world, to the effect that no uniform opinion yet exists upon the subject. Two conclusions are drawn, however, from this report. First, forced-feeding in general should be abandoned; second, the proportion of nitrogenous food should be greatly reduced. An intelligent apportionment of carbohydrates, fat and proteid should be supplied in the least quantity of food consistent with proper nourishment. A sufficient interval between meals should be allowed, to permit of the stomach being thoroughly emptied before the next meal is taken.

I have attempted to emphasize these three important essentials in the handling of tuberculous patients, because they must remain the most potent weapons in the hands of those to whom the majority of these sufferers necessarily come.

The rapid strides with which tuberculin therapy has recently come into popular favor, because of the demonstration of its usefulness in proper hands, will, I predict, be responsible for results which will shortly cause a reversal of opinion regarding it, if it continues to be applied by those who do not appreciate the physiological and clinical importance of hypersusceptibility to this agent in the tuberculous, and who do not qualify themselves to employ it discriminatingly by a thoughtful study of the principles of immunity on which its scientific administration is based. Used under such restrictions and with the patient under close constant supervision, tuberculin at once becomes secondary only, in usefulness, to the three great essentials we have been considering. As the result of any important surgical procedure must necessarily depend on the technical skill, the surgical judgment and experience of the operator; so must the use of tuberculin result beneficially or disastrously, according to the training and experience of the administrator. If this be true, the use of tuberculin as an active immunizing agent, must necessarily be restricted to those who properly recognize its limitations and have prepared themselves by training to interpret its effects.

In conclusion I would emphasize the fact that the aim of scientific treatment of tuberculosis as in all infectious diseases, is the establishment of immunity, either indirectly through the medium of the essential principles here expressed, or directly by the inoculation of tubercle vaccines, whereby the antibodies of the blood are artificially increased.

Aside from the application of these principles, all the much-vaunted remedies, that have from time to time been introduced to an overcredulous profession, have not withstood the test of clinical investigation.

OBSERVATIONS ON BRAIN SURGERY.*

By CAMILLUS BUSH, M. D., San Francisco.

The last five years have witnessed a steady development in intra-cranial surgery. For this we have specially to thank a few persevering men who looked through the veil of failure and high operative mortality, to the pleasanter land of reasonable success. These men who five years ago were losing case after case of intra-cranial disease—whose daily fare was the bitter bread of defeat and mistake, now have the satisfaction of seeing brain surgery on a par with the surgery of other parts of the body, both as regards diagnosis and results. It is largely due to their persistence and steady improvement of technic that neurologists have been forced to declare surgically hopeful many cases that previously have gone unhelped "zu grunde."

Hand in hand with the technical developments have gone an increase in knowledge of brain pathology and localization of function. As in other fields the surgeon here has learned to know his enemies. He knows the relative prevalence of the various brain diseases, their course, manifestations and associations. In addition, special methods of examination and a rapidly increasing number of symptom-complexes are strengthening his hands. The happy time has arrived when the neurologist is his ally, and not his invariable opponent. The number of operations on the brain is being multiplied, the early stages of intra-cranial diseases are being recognized, and a happy result or occasional cure is no longer an event in the surgical world.

In passing it may be of interest to review in a summary way the parts of the brain that give special symptoms. In addition to the well-known general symptoms of intra-cranial pressure, we have those of involvement of special parts of the brain.

1. Frontal lobe diseases with the psychic and mental disturbances.
2. Speech area lesions with the various forms of aphasia due to involvement of the cortex of Broca, or of the various association paths.
3. Motor cortex diseases in the parietal lobe, causing irritations or palsies, or both.
4. Sensory cortex diseases with corresponding anaesthesias, hyperaesthesia, pressure, and temperature disturbances.
5. Steygnostic disturbances in sensory cortex and asymbolia in motor area in the temporal lobe.
6. Auditory center manifestations in angular and supra-marginal gyri.
7. Olfactory center auras in uncinate gyri.
8. Visual interferences.
9. The cerebellar diagnostic pictures of rapidly developing dizziness, ataxia, nystagmus, astheria, etc., with the added features at times of medullary pressure—respiratory and pulse changes.
10. The lesions of the cerebello—pontile angle—

* Read before the Academy of Medicine, October 26, 1909.

characterized by hind brain symptoms in addition to basal nerve stem symptoms.

11. There is even a symptom complex for the loose cysticercus in the fourth ventricle—intermittent attacks of medullary pressure manifestations with free intervals.
12. The question of the hypophysis and its diseases is too extensive a one to go into at this time, but it may be said that aside from the question of acromegaly, gigantism, etc., that the chief characters of pituitary tumor are drowsiness, primary optic atrophy, lowering of sexual activities, fattening, etc., dependent of course on whether the gland is stimulated or depressed.
13. Apraxia (or inability to use articles correctly) has led to diagnosis of tumor in the corpus callosum.
14. Tumors of gasserian ganglion with their characteristic neuralgias of all three branches coming on simultaneously with involvement of the motor root.
15. Tumor originating in the cerebral peduncle distinguished by early progressive and persistent palsy of oculomotor nerve—involvement of lower and upper limbs, absence of ataxia and presence of tremor.

Thus we see the silent areas being encroached upon. To-day even more than three years ago—there are fewer purely decompressive operations and more exploratory craniotomies. In other words, I believe that the majority of brain lesions of a local character are localizable.

The recognition of the cause of choked disc and a familiarity with its earliest appearances have been most helpful factors in the diagnosis of brain conditions.

Add to this the more intelligent use of lumbar puncture and cytological examination of the removed fluid for tumor cells and evidences of syphilis and tuberculosis, the easily applied tuberculine reactions, the Wassermann test—and we find ourselves in a more intelligent frame of mind as regards matters out of sight in the head.

A year or two ago brain puncture was exploited with great enthusiasm as a diagnostic aid. I think it is fair to say that the men best qualified to judge looked askance on the method from the first, involving as it did the risk of wounding pia and cortical veins. Its use is now largely limited to association with craniotomy. Puncture is not to be done unless everything is in readiness for cranial exploration.

A warning too must be repeated as to the use of lumbar puncture in the presence of intra-cranial growths causing great pressure. A not inconsiderable number of sudden deaths from choking of the brain stem due to sudden withdrawal of spinal fluid, are now on record.

So much by way of hasty review of the means at our disposal for making a diagnosis.

Autopsy studies and the greatly increased number of exploratory surgical operations have done much toward putting brain pathology on a surer footing.

With improved technic and better knowledge of

physiology, head injuries are being treated in a more scientific and successful way. We know, for example, how rapid may be the compression following intra-cranial hemorrhage. Instead of expecting a long stage of slow, bounding, high-tension pulse in every case of hemorrhage, we know that within an hour or two from the injury, the stage of Bulbar anaemia characterized by irregular, rapid, low-tension pulse and respiratory disturbances, may have been already reached. In a slower leak the changes may be gradual, of course, but we are quicker to note differences because every case from the first is followed with systematic blood pressure readings and careful ophthalmoscopic observations.

Engorgement of the retinal veins and haziness of the disc appear very early in the compression accompanying hemorrhage or edema. The electric ophthalmoscope, portable, simple and available under all conditions, has been a great boon to the surgeon. We have learned that the dangers in many early cases are principally those arising from pressure on the vital centers. In the cases with moderate hemorrhage from fracture of the base that recover, we are learning that the presence of the old blood causes distant changes that threaten health and life. It may be the origin of sub-dural or cortical cysts, adhesions, or of thickening of the dura. These conditions are fairly sure to leave their unpleasant sequelæ.

Our attention has lately been called to an interesting pressure phenomenon. Following the stage of slow, bounding pulse, we come upon a transient condition where the slow vagus pulse alternates every two or three minutes with the pulse and respiratory effects of Bulbar anaemia. This alternation, if the increase of intracranial pressure be very slow, may persist for some time. The explanation is simple. The normal variations in blood pressure or Traube-Herring waves persist. At the crest of the wave the blood pressure in the medullary arteries balances or exceeds the increased intracranial pressure, so that the vital centers are protected from starvation of blood. But as the wave of normal pressure recedes, the little nutrient vessels are collapsed and the vaso-motor center cells are put out of commission until the crest of the next Traube-Herring wave reaches them. This condition, of course, can not last long. The wide field of head injury, however, has been but little cultivated and many problems still remain to be solved.

Increasing observation of tumors of the brain has begun to give a fair idea of what we may expect in given localities.

First: Tumors may spring from the bones of the skull and encroach upon its contents. These may be benign (osteoma, chondroma, angioma) or malignant (sarcoma). Both sorts may give origin by their degeneration to bone cysts.

Second: The dura may be the source of growths. The commonest of these is an endothelioma—fairly benign—usually more or less encapsulated, and rarely infiltrating. It is one of the most satisfactory of our enemies. Following the degeneration of hemorrhages and of tumors and of so-

called serous meningitis—there may be left subdural cysts. Of course, other forms of dural tumors may occur but we oftenest expect these.

The arachnoid may develop in its spaces clear cysts, that fortunately do not recur when their tops are cut off. I have reported such a case before this society.

In the substance of the brain the glioma is the commonest tumor. It may be benign or infiltrating. It tends to undergo cystic degeneration and is liable to sudden interstitial hemorrhage. Sarcomata are not nearly so common. Fibromata, cholesteatomata, parasitic cysts, tuberculomata, gummata, dermoids, psammomata, together with the varied metastatic tumors occasionally occur.

The point of interest to us is the fact that most tumors occur in the surgically available parts of the brain, usually on the surface, and that of these the majority are absolutely or relatively benign. If one should judge by the older autopsy reports he would get an exactly opposite impression, but the published collections of modern neurological and surgical statistics substantiate the idea I have expressed.

Probably most of the cerebellar tumors reported have been benign solid tumors, tubercles, or cysts. The characteristic cerebello pontile tumor, or what used to be called the acoustic tumor, is benign, fibrous, and encapsulated, and after exposure usually allows enucleation. Sometimes they are double. Most pituitary tumors arising from the gland have been adenomata or cysts. Some malignant growths have occurred.

The question of head technic has been so widely discussed that its interest to the profession in general is but slight. Still a review of points that have proven to be of importance may not be altogether out of place here.

Urotropein, as far as clinical observations can satisfy, seems to be a valuable drug in both a prophylactic and curative role. From our present standpoint a short course of urotropein (30-60 grains a day) should precede every craniotomy and lumbar or ventricular puncture. In cases of fracture of the base or of wounds that might expose the meninges to infection, urotropein in doses of from 60 to 120 grains daily should be administered. Its chief value seems to be as a prophylactic, but its use in meningitis should not be neglected, as at least one case has apparently been cured by this agent. After a 15-grain dose the maximum concentration in the cerebro-spinal fluid occurs after a period of from one-half to one hour.

The question of anaesthesia narrows down to the old question of ether and chloroform. Horsley prefers the latter, the Germans and Americans, as a rule, ether, as being less toxic. Morphia is not used on account of its striking tendency to depress the respiratory center—a mechanism that demands most careful protection in such work.

It would seem almost an insult to your intelligence to broach the matter of asepsis before you, but more and more one is impressed that operators take too many chances; that they are lulled into a feeling of false security by tiled floors, smooth walls and

plate-glass. Often the head is poorly shaved and cleaned. Too much skin is exposed and by the time the head has been lifted in position once or twice, or the anaesthetist has pulled the jaw forward, the towels are disarranged and dirty skin is uncovered. Personally, I believe that it is not beneath the surgeon's dignity to see to those most important details himself, and not to leave them to new nurses or internes.

Equally important and much more difficult is the matter of haemostasis. Rapid operating in a bloody field has no place in brain work. The skillful man has many little tricks to combat the bleeding from scalp, emissary veins, diplo, sinus prolongations, dural vessels, ruptured arterial trunks and cortical substance. Some form of head tourniquet is almost universally used; wax, wooden pegs, cotton pledgets, fine silk or china bead ligatures, hot salt and postural methods are among the methods available. When a case is a bloody one, it may tax every resource, and in spite of the most careful handling, compel a two-stage operation. Unremittent careful attention is demanded of the operator, and quick, rough work will bring its speedy revenge in some troublesome and dangerous result. It is especially important to have the field dry when the time for closure has come. The dura should be perfectly dry, as well at the bone edges and other sources of hemorrhage. The scalp should be sutured in two tiers, subcutaneous fascia, and skin. If this is carefully done the tourniquet is left in place till the whole is complete. Its removal should be followed by no bleeding. Sutures and ligatures should be of the finest possible material. Silk is generally used throughout.

The methods of turning down flaps are many, and need not be considered here. The day of small openings has passed. We do not hesitate to turn down generous flaps, being careful to see that the periosteum is not stripped from their surfaces, otherwise necrosis is invited. No exploration is complete without a wide opening of the dura. One can not see through this membrane.

Aside from these general remarks, certain operations demand special comment. In cases of increasing tension with unlocalizable lesions, or with lesions in an inaccessible position, the subtemporal decompression is the operation of choice unless the symptoms point to the subtentorial region.

This operation is simple, relieves the pressure, and provides for just the proper amount of hernia. At times it is best to make it bilateral, though as a rule it is done on the right side in right-handed persons. It exposes the speech center on the left, and if this portion of the cortex is crowded into the aperture of the skull there may be a disturbance of speech. If exigencies demand a left subtemporal decompression in a right-handed person, a bitemporal operation should be done if the brain is tense. This is a most useful operation in fracture of the base, as most fracture lines run across the middle fossa or its neighborhood, and hemorrhage is almost sure to show here. It gives access to the middle meningeal also. Of course

openings here will protect the brain from the results of pressure due to edema in any part of the cerebrum. The operation is a true grid-iron one; the skin, temporal fascia, and muscle being split and reconstructed in perpendicular planes. The dura is left wide open or excised.

Cushing has lately utilized a combination exploration and decompression flap. This allows the formation of the usual big flap. It has one leg in the temporal region where the muscle is split. If after the exploration the operator judges a decompression advisable, a piece of bone as large as necessary is removed from the lower temporal angle of the bone flap, and the corresponding area of dura is excised. The remainder of the dura is closed, the bone flap replaced and the decompressive opening protected as usual by the temporal muscle and fascia.

The technic of cerebellar operations has been gradually crystalizing till the methods are now fairly uniform. Almost the most difficult detail is that of posture. Probably that best adapted for all cases is the ventral position, with supports to the shoulders on each side to avoid embarrassing the respiration. The face may be supported by a padded ring on a support independent of the table. The ether is sprayed on a mask from below, or ether vapor is given through a tube in the nostril. The muscles are cut cleanly, and carefully preserved. No effort towards an osteoplastic flap is made. The bone over the cerebellum is sacrificed. The opening is immediately made on both sides. This is advisable, first, because cerebellar tumors are often impossible to localize as to side, and second, because a bilateral exposure permits dislocation of the brain and protects from the dangers of retraction and pressure on the medulla. This, moreover, facilitates greatly explorations of the cerebello-pontile angle. In addition to the help given by this cerebral dislocation in cases of increased tension, more may be obtained by draining off cerebro-spinal fluid, by pricking the basal cisternæ, and by concomitant lumbar puncture. Also to obtain room one should not hesitate to remove the back of the arch of the foramen magnum. The writer well remembers seeing one cerebellar death on the table from over-retraction of the cerebellum, in a hunt for an acoustic tumor. A cerebral dislocation would have avoided this catastrophe.

The technic of pituitary tumors is still in the tentative stage. Horsley has done his through temporal openings. Hochenegg and Cushing through the ethmoid cells and base. Cushing's experimental work on dogs has been done by the temporal route, utilizing the principle of cerebral dislocation by making bitemporal openings.

Von Bramann, in Halle, has just reported the result of making what he calls a "Balkan stich," or communication between the lateral ventricles and subdural space. This he utilizes in internal hydrocephalus where ordinary lumbar and ventricular puncture do not succeed in reducing the pressure or averting the advance of the choked disc. His results have been very encouraging indeed. The

method consists in making an osteoplastic flap near the media line, exposing the longitudinal sinus, opening the dura, retracting one hemisphere and putting a trochar into the roof of the 3d ventricle and into the lateral ventricles. This opening is enlarged, and provides permanently the desired drainage.

My apologies are due the society for the scattered and sketchy nature of this communication. I have endeavored to indicate advances here and there, rather than to be complete in any one department.

In conclusion, I should like to report the following cases:

Extradural abscess of the base of the brain, following septic pneumonia, and communicating with the exterior by a fistula, opening through the supra-orbital plate and upper eyelid. Death due to sudden increase of tension. Exploratory craniotomy. Decompression. Autopsy.

Case 1. Patient is a man, age 38. He, for about 15 years, has suffered from the results of an old burn on the leg. During much of this time the wound has suppurated. He has undergone various skin grafts, the last one being about 4 months ago. This operation was followed by infection of the superficial veins of the leg, and in a few days by pneumonia.

Soon after his recovery from pneumonia, headache set in; the pain lasted for a month, becoming more and more intense. Then there appeared an abscess which pointed through the lid of the right eye. On several occasions this has been opened and drained, but has never healed. Meanwhile he has had occasional headaches of a very severe type.

Two weeks before admission to the hospital, under the impression that the pain was caused by empyema of the frontal sinuses, Dr. Cone explored the sinuses, with negative result, and this wound has since healed. Two days before admission, his general condition suddenly became worse; he developed vomiting, intense headaches, slow pulse, and a double-choked disc. The sinus over the eye discharged more than usually.

Examination Mt. Zion Hospital, July 27th, 1909.

Patient was seen in hospital with Drs. Waller, Moffitt and Cone. Patient is lying in bed in a stupor; heavy stertorous breathing; pulse ranging from 40 to 60 in a minute. He is having some vomiting of a rather projectile type. He is able to move all his extremities, but the left arm is, possibly, more inert than the right. As far as can be ascertained, there has been no disturbance in sensation. The knee jerks are absent, and the epigastric reflexes are diminished, especially on the left side. The other reflexes are normal. No disturbances of the cranial nerves. Just above the right eyeball there is a sinus which exudes a dark, yellowish pus. There is about three degrees of fever, and a leucocytosis of 18000.

Operation on the same day. A tourniquet was applied about the head. A horseshoe-shaped skin flap, with its base in the right temporal region, and its extremity almost reaching to the longitudinal sinus, was cut. Its outlines would include most of the frontal lobe and the anterior portion of the parietal and temporal lobes. The posterior extremity of this flap corresponded to about the fissure of Roland. The two usual trephine openings were made at the superior angles; the dura was freed, and the skull divided with the Gigli saw. The lateral incisions were made by the Devillbiss forceps. The bone was then broken down, and the rough, extremely tense, non-pulsating dura exposed. This was wide-

ly opened, allowing the brain to bulge tremendously. Multiple punctures, with small trocar, failed to reveal the presence of pus. The dura was left opened, the bone flap replaced after part of its lower pedicle had been cut away to allow for decompression. The temporal muscle was sutured with fine silk, the scalp was united with interrupted sutures of the same material. The wound was dressed with silver foil. There had been very little bleeding up to this time. When the tourniquet was removed, there was some sharp bleeding from the skin edges. These points were controlled with additional sutures. The patient's pulse which had been 48 at beginning of operation, had risen to 120 after the opening of the dura. Patient was taken back to the ward. During the night there was abundant oozing which saturated the dressing.

Note, July 28th, 9 a. m. Patient passed fairly comfortable night and seems bright and improved, but this morning has again become stuporous, though the pulse stays at 100, and shows no signs of increased tension. He has vomited several times. Left arm seems partly paralyzed. Dressings were all removed, and there seems to be no undue bulging of the flap, though it is definitely raised. It seems likely that there is haematoma in the flap.

Lumbar puncture was performed, and about 60 cc of slightly bloody, but otherwise clear fluid, withdrawn. This relieved somewhat the stupid condition of the patient.

Note, July 28th, 4:30 p. m. Patient has had increasing pressure signs, and a complete left hemiplegia. Pulse is of a poor quality, and rapid. He was taken to the operating room, and flap turned down. There is considerable clotted blood over the brain, and a great hernial protrusion of the cortex. Flap resutured.

Note, July 29. Patient died this morning at 8 o'clock. Autopsy show abscess of the base of the brain, communicating by a fistulous tract with the right orbit, by means of the perforation of the right supra-orbital plate. The abscess is rather diffuse, but is continued to the middle and posterior fossae, and extends for an indefinite distance down the spinal canal. Pus is thick, and yellowish green. The only other lesion is a small abscess of the posterior mediastinum.

Jacksonian epilepsy, due to subcortical tumor occupying the motor and sensory areas of the left hand. Excision of the tumor, which was benign, followed by recovery.

Case 2. G. C., age 25. American sailor. Admitted to the University Hospital July 9th, 1909, discharged August 6th, 1909.

Complaint: Epileptic fits. Family history, negative. When 14 years of age was struck on the head with an iron bar. He was knocked unconscious for several minutes, and lost the power of speech, which was not regained for several months. Patient had gonorrhea once; denies lues. He drinks to excess. In October, 1907, after an alcoholic debauch, he was suddenly seized with his first attack. The fingers of the left hand were first involved in spastic, athetoid movements, then the arm and the whole left upper extremity participated. Intense pain appeared in the hand and forearm. He became unconscious, cried out, bit the tongue, etc. There was no aura; the attack lasted 6 minutes. The second attack followed four months after the first. The attacks have been increasing in frequency ever since. They vary in severity, from slight sensory and motor irritation of fingers of left hand, to general convulsions, accompanied by unconsciousness.

Five months ago, a button of bone was removed from the upper part of the right parietal bone. The

dura was not opened. No relief followed this operation. The attacks have been frequent since he has been in the hospital; several some days. Examination reveals some loss of power in the left hand, together with diminution of touch, pain and temperature senses over fingers of left hand. There is slight, but definite asterygnosis of left hand. The condition points clearly to a lesion of both motor and sensory left-hand areas. The sterygnostic centre is known to occupy the sensory cortex in the hand area.

Operation, July 20th, 1909. Exploratory craniotomy and removal of subcortical tumor. The exploration was conducted through a large flap. The anterior and posterior central convolutions were widened to double their size, and a hard mass could be felt under the surface of the brain. Cortex was incised, and tumor removed by blunt dissection. It was about one cm deep, and measured about $1\frac{1}{2}$ by 3 cms. It was hard, poorly encapsulated, and fibrous. Patient recovered quickly from the operation, and barring two or three attacks on the day following operation, had no other attacks up to the time of his discharge. He left as mate of a vessel going to Tahiti. Dr. Lee reported the tumor to be a benign, fibrous one, possibly an old scar. A letter from the patient during the last few days reports three epileptic attacks of moderate grade since his operation.

Case 3. Mrs. L. Gunshot wound of the brain, accompanied with extradural and subdural hemorrhage. Subtemporal decompression. Recovery.

Admitted to the Central Emergency Hospital, 6 p. m., Sept. 12th, 1909, with a history of having been shot in the head two hours before.

When patient was seen, she was bleeding profusely from the wound of entrance of the bullet in left cheek, and from the wound of exit near the vertex of the skull on the right side. She was also bleeding from the nose. The alveolar process in the left side of the lower jaw has been loosened for about an inch; the loose piece contained three teeth. The bullet had passed from the hard palate through the posterior nares. The right eye bulged tremendously, the lid was black, the pupil fixed and dilated. Patient was irrational, but could be aroused by pain sensations. The left side of the body was slightly paretic, and the reflexes on the left exaggerated. The pulse was between 40 to 50 to the minute, and during the examination she several times vomited a large amount of dark blood, mixed with particles of food. The head was shaved, and she was prepared for immediate operation.

Under ether narcosis, a typical right subtemporal decompression was done. There were extensive linear fractures in the skull in the region of the wound of exit. A large button of bone was removed under the temporal muscle. This opening was enlarged and allowed the escape of a large quantity of blood which had been compressing the brain. This was followed by immediate rise of the patient's pulse, and improvement in the respiration. The dura was then opened, and from under it there also escaped considerable dark blood. The brain itself was infiltrated. No attempt was made to close the dura. The rest of the wound was closed as usual with fine black silk. A small drain was conducted to the wound of exit.

Sept. 13th, 8 a. m. Patient's pressure symptoms were relieved by operation, to a large extent. There has been profuse seepage of blood during the night. Patient has taken large quantities of salt sol. by rectum, and was infused this morning. Paralysis on the left side seems completely cleared up. Patient is conscious, though irrational. The pulse varies from 100 to 112; respiration, regular. She has had a normal sleep. Condition of the right eye is unchanged; she vomited some during the night,

but has taken this morning water, and is being given Urotropin.

Sept. 15th. Patient has been removed to Trinity Hospital. The operation wound has healed per primam. Considerable broken down brain tissue has been extruded through the wound of exit, together with a little cerebro-spinal fluid. There is still slight paresis in the left side. Babinski on left; reflexes depressed.

Patient is conscious, presents no signs of meningitis, but has some irregular fever. Vision in the left eye, good. Dr. Frederick, oculist, reported a thrombosis of a cavernous sinus on the right side. This eye is of course blind. Patient has constantly been given large doses of Urotropin, the dosage at first being 120 grains a day, later on, more. The fever has gradually subsided, and it is apparent that any local meningitis that may have been present has cleared up. From this time on she made an uneventful recovery, with the exception that a sinus presented at the wound of exit of the bullet. About a month after her first operation, the skull was explored in this region. Nitrous oxide gas was used. A number of pieces of dead bone were removed. This wound has since healed.

THE PRESENT STATUS OF THE OSMIC ACID TREATMENT OF NEURALGIA.

By T. C. McCLEAVE, M. D., Berkeley.

Two years ago I reported before this Society a case of trigeminal neuralgia treated by intraneural injections of osmic acid (1). Murphy (2) had just previously (1903) redirected attention to this method of treatment as advocated in 1899 by Bennett of London (3), reporting some seven cases, and my case was, I believe, the first so treated on this Coast.

Since then the lapse of time and the reports of additional cases, together with the experimental work of Murphy (4) and, more recently, Eastman (5), have afforded opportunity for somewhat adequately estimating the value of the operation. Reviewing briefly, the history of my case was that of a woman fifty-six years old, who had suffered for thirteen years with bilateral tic douloureux of the most severe type, the paroxysms being, however, more acute upon the right side. The occurrence of the disease bilaterally was ascribed to a spinal origin, as certain disturbances of the reflexes were also observed, a point of considerable interest in estimating the effect of local treatment.

This patient had been treated by numerous able physicians, all the usual medical measures having been tried, and two nerve-cutting operations having been done, with but temporary relief. She came under my care December 20, 1903. Her condition at that time was distressing in the extreme. She was weak and emaciated from inability to eat and loss of sleep, and tortured by pain so severe as to require almost lethal doses of morphin to control it.

I first operated upon her on January 13, 1904, injecting the nerves on the right side in the usual manner. The operation was followed by almost immediate and complete anesthesia of the area supplied by the supraorbital branch, but prompt return of pain in the other branches. Second operation January 29, 1904. Through a larger incision it was then seen that the infraorbital nerve injected at the first operation was but one of a number emerging through a bony slit and uniting to form a tortuous mass the size of a small marble, from which numerous larger and smaller nerves radiated

downward into the tissues of the cheek. These were injected and cut and the mass removed. A trephine opening was then made in the ramus of the jaw, and through this the greatly hypertrophied inferior dental nerve was injected distally and proximally and about three-quarters of an inch of the nerve trunk was excised. This operation was followed by practical freedom from pain on that side for almost a year, except for some local irritability in the cheek where some small branch had probably escaped attention. Severe paroxysms affecting chiefly the infraorbital branch, then recurred.

A third operation was done on April 26, 1905, the infra and supraorbital and the inferior dental branches on the left side being exposed, as described above, and injected. The right cheek was also again exposed and several small nerves found to have regenerated, which were injected. This operation gave relief for some few months only, when the paroxysms recurred, very much reduced, however, in intensity and frequency.

As a result of the three operations the patient has been afforded long periods of relief, and a considerable mitigation in the severity of her now infrequent paroxysms as compared with the pain previously experienced almost continuously. The improvement in her general condition which followed the second operation has been maintained to a large degree, and she is now in fair health. It is therefore fair to say that the osmic acid method accomplished far more in this case than any of the other forms of treatment to which the patient had been subjected. (Note: August 1, 1906. The attacks of pain are becoming more frequent, but not quite so severe as formerly. Complete recurrence is anticipated.)

Dr. Sherman and Dr. Barbat have each treated a number of cases with osmic acid, and I am indebted to them for permission to refer to their results.

Dr. Sherman's cases.—Total number, 6 (trigeminal neuralgia).

No. 1. Operated on 15 months ago; recent recurrence (trigeminal).

No. 2. Operated on 9 months ago; no recurrence (trigeminal).

No. 3. Operated on 6 months ago; no recurrence (trigeminal).

No. 4. Operated on 6 months ago; no recurrence (trigeminal).

No. 5. Operated on 3 months ago; no recurrence (trigeminal).

No. 6. A recent case, with relief from pain after three operations (trigeminal).

Dr. Barbat's cases.—Total number (trigeminal, 3; intercostal, 3).

No. 1. Operated on 15 months ago; no recurrence (trigeminal).

No. 2. Operated on 8 months ago; no recurrence (trigeminal).

No. 3. Operated on 8 months ago; recurrence probably due to pressure of aortic aneurism (intercostal, 3 nerves).

No. 4. Operated on 8 months ago; no recurrence (intercostal).

No. 5. Operated on 7 months ago; no recurrence (intercostal).

No. 6. Operated on 2½ months ago; no recurrence (trigeminal).

Bennett (3), Murphy (2-4), Wright (6), and recently Eastman (5), have reported a considerable

number of cases of neuralgias of various nerves treated by the osmic acid method. Their results have not of course been uniform, but on the whole a very large percentage of the patients have been relieved of their pain for long periods of time, the relief in many cases being apparently of longer duration than nerve cutting or stretching operations might have been expected to afford, these measures having previously failed in many instances.

Murphy (4) and Eastman (5) have each reported the results of experimental investigations as to the effect of osmic acid on nerve tissues, which may be briefly summarized by stating that the changes observed were very slight, except for the disintegration of the perineural fat and fatty myelin substance when brought in contact with the acid. No progressive degenerative changes were noted, and only slight inflammatory processes in the nerve fibres themselves. The experimental findings then offer no reason for theoretically considering osmic acid an efficient agent so far as permanency of cure is concerned.

Clinically, however, the results obtained have very largely been excellent, and as the operation is simple and devoid of danger, this method should have the preference over any other until its failure in any given case be demonstrated. The operation can be repeatedly done if necessary. It is of interest that the injection of alcohol about the points of exit of the nerves has recently been said to afford relief of long duration in cases of tic (7).

REFERENCES.

1. Cal. State Jour. of Med., 1904.
2. Journal A. M. A., 1903.
3. London Lancet, 1899.
4. Journal A. M. A., 1904.
5. Journal A. M. A., 1906.
6. Med. Chron., Manchester, 1903-04.
7. Berliner Klinische Wochenschrift & (ostwalt) 1906. Presse Medicale, Paris, 1905. Reviewed Jour. A. M. A., 1906. Pages 390-759.

A CRITICAL REVIEW—THE OCCURRENCE AND SIGNIFICANCE OF THE BOAS-OPPLER BACILLUS IN THE STOOLS IN CARCINOMA OF THE STOMACH.

By H. W. ALLEN, M. D., San Francisco.

The occurrence and significance of the Boas-Oppler bacillus, also known as the long bacillus and the lactic acid bacillus, in the stomach content in gastric affections has been a subject for discussion and dispute since the original publications by Boas¹ and by Oppler² in 1895. On the one hand are many authorities who attach very slight importance to this organism and in whose writings it receives very scant mention; on the other are those who consider it of the greatest importance in the recognition of malignant gastric affections. In the past few years several careful studies of this bacillus have been made and fairly definite conclusions regarding its occurrence in various gastric diseases have been reached. Sick³ has made an extensive study and comes to the conclusion that the long bacillus cannot be utilized for the early diagnosis of carcinoma of the stomach since it occurs also in other gastric diseases; he considers, however, that it causes lactic acid fermentation only in the presence of an ulcerating carcinoma.

Fricker⁴ also finds the long bacillus in gastric diseases other than carcinoma but only in very small numbers and unassociated with lactic acid.

In all cases where the condition of diminished or absent hydrochloric acid was associated with disturbed motility (retention) he constantly found a marked increase in the number of lactic acid bacilli associated with considerable quantities of lactic acid. He has also found these bacilli in an oesophageal diverticulum and considers that the normal habitat of the organism is the mouth from whence it gains access to the stomach and intestines, there to multiply when conditions are favorable.

Tabora⁵ emphasizes the importance for early diagnosis of finding in the stomach content very small particles of blood clot in which are included large numbers of Boas-Oppler bacilli. It has been shown that these organisms grow best in media smeared with fresh blood, which explains their abundance in the clots. Tabora considers such a finding one of the earliest signs of carcinoma of the lesser curvature.

From these and other studies the conclusion seems fair that the presence in gastric contents of decided numbers of Boas-Oppler bacilli is a point strongly in favor of the diagnosis of carcinoma. Inasmuch as the passage of the stomach tube is sometimes contraindicated or attended with decided difficulties it has been suggested that a microscopical examination of the intestinal flora might aid in the recognition of carcinoma of the stomach.

To R. Schmidt⁶ seems to belong the credit for first demonstrating a decided change in the fecal bacteria in a case of gastric carcinoma. In 1903 before the Wiener Medizinischer Gesellschaft he showed slides from a case of gastric hemorrhage where the original diagnosis of ulcer was changed to carcinoma because of the presence in the feces of large numbers of lactic acid bacilli. In 1906 Schmidt⁷ published a study of the bacterial flora of the stomach and intestines in various gastric affections, in which he showed that under certain obscure conditions such as are afforded by carcinoma of the stomach it is possible for the Boas-Oppler bacillus to survive in its passage through the intestinal canal and be recognized in the feces both by cultural and staining methods. While cultures are preferable for the demonstration of the organism yet Schmidt considers that after one has had experience, judgment can safely be based on the morphological appearance and staining reactions. He emphasizes the following points: thin bacilli of varying length but predominantly long; without spores and non-motile; Gram positive but often showing partially Gram negative areas.

Extensive studies of film preparations of stools stained by the Gram method have shown that in health and also in most disease conditions the feces are essentially "Gram negative"; that is, aside from the Gram positive cocci very few Gram positive organisms occur. McNeal, Latzer and Kerr⁸ in a recent elaborate study of fecal bacteria estimate that normally the Gram negative organisms vary from 63% to 97% of all intestinal bacteria; while the Gram positive bacilli run from 1.4% to 34%. Usually low figures were obtained for the latter

class; they seldom reached over 10% and averaged from 4% to 7%.

Schmidt in his paper recognizes three types of what he calls Gram positive stools: I. Lactic acid bacillus type. The predominating organisms in this class have the characteristics of the Boas-Oppler bacillus as described above. The finding of these bacilli in the stools has the same significance as their occurrence in numbers in the stomach content; that is, in the majority of cases they are associated with gastric carcinoma. Only once did Schmidt find a Gram positive stool of this type in a purely intestinal trouble. II. Pseudocolon bacillus type. This, as the name implies, is characterized by the presence of an organism having the general morphology of the colon bacillus but staining by Gram. Such a picture Schmidt found chiefly in varying intestinal disturbances. III. Thread-like type with organisms showing the so-called granulose reaction when treated with iodine solution.

While he gives no definite figures Schmidt emphasizes the frequent occurrence of type I Gram positive stools in carcinoma of the stomach and its absence in other conditions. He mentions its value in distinguishing between pernicious anemia and gastric cancer and advocates the use of this method of diagnosis when for any reason stomach analysis is not convenient.

Following up Schmidt's work Elliott⁹ in 1906 published a report of 25 patients whose stools were examined by the Gram method of staining. Of these 18 were negative and 7 positive. Of these 7, 6 were proven either at operation or autopsy to be cases of carcinoma of the stomach. One was an instance of acute ulcer. Among the negative cases there was only one of gastric cancer. Elliott concludes that while a Gram positive stool (type I) is not pathognomonic of carcinoma of the stomach yet it occurs very frequently in this condition and is a sign that may be used to an advantage in establishing a diagnosis of carcinoma.

Very recently Brown¹⁰ has again drawn attention to the value of Gram positive stools (type I) in diagnosis and mentions 4 cases where positive findings were of decided aid to him.

In the past 2 years the reviewer has employed the Gram stain as a routine measure in practically all stool examinations in suspected gastric and intestinal affections. The results have been classified as Gram positive or negative according as organisms corresponding to the morphology of the Boas-Oppler bacillus were present or not. That is, though the specimen might abound in Gram positive organisms, unless some of these conformed to the lactic acid type it was classed as negative.

Sixteen specimens were classed as positive at the first examination but of these, two were subsequently put in the negative class as the flora had definitely changed. Of the remaining 14, 7 have been proven at either autopsy or operation to be cases of carcinoma of the stomach. Of the other 7, 6 were perfectly typical cases clinically of carcinoma and of these at least 4 have proved fatal,

thereby in a measure confirming the diagnosis. The remaining case is still alive after about 2 years and it is doubtful if the diagnosis is carcinoma. In this latter case only one specimen was examined and that at the very beginning of the work and it is possible that later examinations might have altered its classification.

In no instance has a recognized case of carcinoma of the stomach had a Gram negative stool. An accurate record of all the negative cases has not been kept but among them were instances of carcinoma of the oesophagus, pancreas and intestine; achylia gastrica; acute and chronic gastric ulcer; pernicious anemia; cirrhosis and syphilis of the liver; various types of enteritis and colitis. In several instances the findings, both positive and negative, have proven of very decided value in diagnosis.

The number of lactic acid bacilli present in the stools may vary considerably. In typical cases they are abundant and give to the specimen a decidedly Gram positive appearance. In some instances, however, their number is relatively small and they may be greatly outnumbered by Gram negative elements. Nevertheless the fact that organisms corresponding to the Boas-Oppler bacillus are present serves to put the specimen in the positive class. The contrast between the picture presented by smears from normal and from carcinomatous individuals is ordinarily very striking and one usually has little hesitancy in deciding to which class the specimen belongs. At times though one is in some doubt particularly when lactic acid bacilli are few in number or when the positive organisms partake of the characteristics of type II. Ordinarily one examination is sufficient but in doubtful cases additional specimens should be observed.

Only a few instances of Gram positive stools of type II were encountered and no special diagnostic importance could be attached to them. No examples of type III were seen.

Objection may be and has been raised that morphological and staining characteristics are insufficient for the accurate recognition of the lactic acid bacillus. To overcome this objection cultural methods may be resorted to. The organism grows readily on certain media, the chief difficulty being to obtain it in a state of comparative purity so that other bacteria do not overgrow it. Sandberg¹¹ finds that by mixing small quantities of feces with gastric juice which has been sterilized with chloroform and allowing it to stand for 24 to 48 hours the vast majority of the organisms originally present are killed or rendered incapable of growth while the lactic acid bacillus survives and can be cultivated on glucose agar media.

Rodella¹² has also written extensively on the cultivation of these organisms from the stools.

The technic of the staining method is very simple. The smears of the stool are made either on slide or cover slip and are fixed by heat or as suggested by Elliott by immersion in methyl alcohol for 5 minutes. They are then stained by the well known

Gram method using dilute carbol fuchsin as a counter stain.

From the constancy of positive results in carcinoma of the stomach and of negative findings in other conditions it would seem that this simple laboratory procedure should be used as a routine in the examination of all suspicious gastric conditions.

REFERENCES.

1. Boas. Deutsche Med. Wochenschrift 1895, No. 5.
2. Oppler. Deutsche Med. Wochenschrift 1895, No. 3.
3. Sick. Deutsches Archiv. f. Klin. Med. 1906 Bd. 86, p. 370.
4. Fricker. Archiv. f. Verdauungs Krankheiten 1908 Bd. 14, p. 537.
5. Tabora. Deutsch. Med. Wochenschrift 1905 Bd. 31, Nos. 15 and 16.
6. Schmidt. Munch. Med. Wochenschrift 1903, No. 49, p. 2165.
7. Schmidt. Mittell. a. d. Grenzgeheiten d. Medizin u. Chirurgie 1906 Bd. 15, p. 701.
8. McNeal, Latzer and Kerr. Journal of Infectious Diseases, 1909, Vol. 6, No. 2.
9. Elliott. Surgery, Gynecology and Obstetrics, 1906, Vol. 2, No. 6, p. 505.
10. Brown. Journal of the American Medical Association, 1909, Vol. 53, No. 19, p. 1525.
11. Sandberg. Munch. Med. Wochenschrift, Vol. 55, No. 22, p. 1171.
12. Rodella. Centralblatt f. Bacteriol., 1908, Vol. 47, p. 445. Wiener Klin. Wochenschrift, 1909, No. 22.

COMMENTS ON TROPICAL MEDICINE.

By CREIGHTON WELLMAN, Oakland.

Zoology and Medicine.

Medical Zoology is rapidly coming to its own. Since the recognition of specific causes of disease bacteriology was the first to ally itself with clinical medicine and for a time threatened to divide the field with the pathologist. But there has been and still is an increasingly significant tendency to admit and study the effects of animal organisms in disease with the same thoroughness with which bacterial affections are observed. A considerable part of this is to be credited to students of tropical medicine. Portions of protozoology, formerly regarded as an academical science, helminthology, long looked upon as a distinct and isolated branch of natural history, and entomology, which was for centuries tolerated as a hobby of dilettantes, have gradually become co-ordinated into a logical science which touches and explains a goodly fraction of the important diseases of mankind. This study should be taught systematically and thoroughly in every medical school in the country instead of being touched upon in a desultory manner by the bacteriologist, pathologist or clinician.

Leprosy in California.

During several months' study of a small group of lepers at the Alameda County Infirmary the writer has become much interested concerning the presence among us of this (to the pathologist) most fascinating of all diseases with the possible exception of syphilis. The invasion by the germ of all the tissues except the muscles, coupled with the comparative immunity of the vital organs, produces a remarkable disease picture. This was strikingly ex-

emplified in an advanced case which came to autopsy last week. We have recently seen a leper on the streets of Oakland and Dr. Thomas J. Clark reports having noticed two or three more. Dr. Martin H. Fischer has called our attention to a case occurring at Livermore in a white man who had never been abroad. We should be glad to get further reports of the existence of the disease in the State.

Our Small Rodents.

The carrying by rats and mice of other diseases besides bubonic plague, to say nothing of the enormous economic loss occasioned by their destructive habits, constitutes a perfectly sufficient reason for all the effort and expense incurred in the extermination of these pests. In addition to harboring several kinds of entozoa which may affect man (*Trichinella*, *Hymenolepis*, *Taenia*, etc.) it is now claimed by Barabaschi (*Gaz. d. Osp. e d. Clin.*, 1909, p. 1417 f.) that various pathogenic bacteria such as pneumococcus, bacillus of anthrax, streptococci, etc., are disseminated by these animals (mice). A recent monograph on the rat gives a long and impressive list of the economic, hygienic and other sins of that mammal. Medically speaking, in addition to hydrophobia we have a special and sometimes fatal disease due to rat-bite described from Japan (*Mittell. a. d. Grenzgeb. d. Med. u. Chir.*, 1900, p. 231 f.) If space permitted some disconcerting things might also be said regarding the protozoan and arthropod guests of domestic rodents, but enough has been predicated to show our sympathy with the aims of the Society for the Destruction of Vermin.

Hookworm Among Us.

The first conference on the eradication of hookworm will meet in Atlanta, Georgia, this month. Several cases of this disease have been reported from this State to the writer, and through the kindness of Dr. W. A. Clark, Superintendent of the Alameda County Infirmary, we have had opportunity of keeping an instance of severe infection under careful observation recently. One of the endemic centers of the disease seems to be the Sandwich Islands, and former residents of that territory are constantly introducing the worm into California. We hope that further reports of cases will be sent in. It is especially important to have information from rural districts and small towns.

A Suggestion.

Some of the physicians have been good enough to take a part in this department and have kindly reported their observations and cases of tropical disease. It is hoped that this activity may grow and widen and that the medical men, not alone of the bay cities but of the entire State, may take up the

matter of focusing the interest regarding tropical medicine in these columns. We should especially like to hear more from the southern part of the State. May we suggest that every physician who meets with an instructive case communicate with us? There is no doubt but that every reader of the JOURNAL who is interested in scientific medicine will greatly appreciate such information.

DERMATITIS FACTITIA IN A PATIENT WITH PRURITUS GENERALIS—A CASE REPORT.

By HARRY E. ALDERSON, M. D., San Francisco.

This condition is uncommon enough to warrant the reporting of cases, and the following is an account of one recently seen in the practice of the writer, presenting some peculiar features.

Mrs. X. Age 62+. Widow. Vocation: At present she devotes all her time to the relief of her symptoms. She formerly conducted a fake medical institute. She is poorly nourished, very nervous and a pronounced hypochondriac. She has had pruritus generalis, formication being a marked feature, for four years. She states that the excitement during the great fire in San Francisco and the trying times following were responsible for its onset. She cherishes the interesting theory that her "system is full of a gritty substance which is gradually working its way through the skin where it causes intolerable crawling sensations, etc." To "capture" these grains, she gouges out a piece of epidermis at the proper psychological moment and is rewarded by instant relief, whereupon she awaits with poised thumb, the appearance of this sensation elsewhere and then promptly scoops out more epidermis. This performance occurs daily. The superficial lacerations that she thus induces are of about the width of her thumb nail and from one-half to one-inch or more long. They are usually straight in their direction; but often form slight curves. She always immediately cleanses the wound and so it soon crusts over and heals. A white, faintly marked, permanent scar, surrounded by a narrow zone of dark pigmentation, results. This pigmentation is an interesting feature and is probably due to the fact that the pigment cells are naturally in a state of increased activity at her age (62+), and also that they are often very active in itching dermatoses where there is much rubbing or scratching. Her body is covered with these scars, so that hardly any space is left for new lesions.

She is improving very much under suggestive treatment and the following medication: Strontium bromide (gr. 10) every four hours, and tincture rhei every three or four days; also a lotion composed of liquor carbonis detergens, zinc oxide, calamine, liquor calcis, and oleum amygdal. dulc. She is gradually learning to rub this on in place of the destructive scoop with her thumb nail.

This patient presents a condition allied to acaro-phobia, the usual accompaniment of pruritus senilis. Instead of imagining that the sensations are due to parasites, however, she blames "migratory grains of sand" for her trouble. The universality of the symptoms and the fact that they occur the same throughout the year, are rather unusual features. The patient's skin is fine and delicate, but rather dry. Very little evidence of senile degeneration, aside from thinness and dryness, is apparent, and so one usually finds the skin to be in pruritus senilis.

The foregoing record well illustrates the impor-

tance of avoiding haste in making a diagnosis. Without carefully examining and investigating this case, one could easily go astray in naming the disease. The peculiar white scars, with surrounding zones of pigmentation, might be very misleading in the absence of any history or general observation of the patient.

SOCIETY REPORTS

SONOMA COUNTY.

Regular meeting, Petaluma, Jan. 7, 1910.

1. Address, President S. Z. Peoples, "The Plans and Aspirations of Our Society for 1910."

After briefly reviewing the history and work of the Society, he expressed himself briefly as follows:

That if our Society accomplished nothing more than getting its members better acquainted, it would serve a useful purpose. That we expect and hope to have at each meeting in the current year some live practical subject for consideration and clinical material whenever possible and that the entire membership shall freely enter into the discussion. That our county fee bill should be supported at least as to a minimum charge, and that our bills when presented bear not less than this minimum charge. That every eligible physician in the county should be induced to join the Society.

"I wish to advocate here what has been suggested before but never put into action, the organization of the physicians of each community into a local society." Their sphere of action to be, to fix distance fees to certain well known landmarks, deal with questions arising with the local pharmacists, matters of sanitation, public health, etc. "I wish to remind you right here, of our duty in reporting contagious diseases and births to the proper authorities. We should not allow ourselves to be reminded of these duties by arrests made for neglecting them. Let us endeavor to eliminate 'deadbeats' as much as possible from our service, compiling a 'blacklist' if necessary."

That we consider the attitude of local pharmacists toward the profession, and possibly meet with them for the consideration of matters of mutual interest and probably send a circular letter to all the druggists of the county defining our attitude in our relations with them.

"Let us devote more attention to the commercial end of our business."

"Stand together for mutual protection and advancement of the profession and keep in mind that a kind act or a kind word for a brother practitioner will profit you more than unfair criticism and disparagement of another."

2. Paper—Dr. Marion B. McAulay. Appendicitis. After briefly referring to the attention this subject has and is receiving in all fields of medical work and literature and briefly relating its historical significance, the doctor presented the following points notably among others:

Above all things success in handling and curing appendicitis at the present time lies in making "a quick and accurate diagnosis, for without relation to present signs and symptoms a case may result in rupture within one hour." Refers briefly to the anatomical position and relations of the appendix and the difference in opinion among well known surgeons and anatomists, giving as her personal

(Patient exhibited before the University of California Medical Alumni Association.)

opinion that though many authorities describe the organ as being curled upon itself that the curling of the organ is due to adhesions and the formation of constriction bands as the result of inflammatory processes. Briefly notes the manner of classifying different inflammatory processes of the appendix. Calls particular attention to the fact that the same etiological conditions may be found here as elsewhere in the body with the same causal agents. More frequently here than elsewhere, due to the proximity of the intestinal canal; the infecting agent is *b. coli communis*, and most infections arise from the mucous lining. The appendix being a blind sack, when inflammatory processes arise within it tumefaction at the proximal end closes its only outlet. Then, by the accumulation of pus and serum the sack is distended and goes on to rupture or gangrene with localized peritonitis which may become diffuse or by the adhesion of adjacent portions of the peritoneum may form a walled-in abscess. This train of events has given two methods of treatment: Immediate operation to prevent rupture and peritonitis or: Expectant to allow time for the formation of a walled-in abscess.

There is a classical symptom complex for appendicitis but to obtain results one cannot wait for this classical picture to make a diagnosis for any one or more of these symptoms may be lacking. A sudden decrease in temperature with a rise in the pulse rate and a cessation of the subjective symptoms must be treated with suspicion. Medical treatment consists in rest and the application of heat or cold applications. Ice if the temperature is high and heat if there is much pain. Dr. McAulay does not know any reason why water should be withheld and rather encourages its use. Advises the use of castor oil repeated as frequently as necessary, using also high enemas of saline solution, soapsuds, milk and molasses or epsom salts three times daily. With frequent enemas, patients who have been very constipated will pass large masses of feces, followed by quantities of scybala and finally mucus and pus. Prefers operation in every case, because a positive diagnosis of the condition of the appendix can be made only by seeing the organ itself. In case of ruptured appendix the Mayos recommend doing all that is possible in ten minutes and completing at a subsequent operation, thus saving the patient from the effects of a long continued anesthetic. Dr. McAulay does not agree with this method of procedure, except when the patient is in extremis. She prefers to remove all that is offending at the first operation. The doctor recommends Dr. O'Brien's method of carefully sponging out the abscess cavity, disturbing the surrounding structures as little as possible, by slowly and carefully inserting sponges on long sponge holders until the bottom of the cavity is reached and the diseased area exposed for operative procedure. On first opening the abscess the walled-in pus is allowed to well out until a clear field is left for further procedure. Finally closing the wound leaving a drain which reaches to the bottom of the cavity.

Prognosis: There are no statistics offered for unoperated cases while less than 1% recover with late operation. The deaths result from both delay and sepsis. Out of 25 cases operated Dr. McAulay reports no deaths.

"Operation is simple and safe in uncomplicated cases, convalescence is short and cure certain, while after the appendix has ruptured the patient is not in condition for an easy operation or a long convalescence."

3. Operative Technique (in conjunction with Dr. McAulay's paper). Dr. J. T. O'Brien.

The classical gridiron incision is ideal when we are positive there is no pus. But this route gives

room for only two fingers to enter and insufficient room in which to operate. So it is often necessary to extend the incision into the sheath of the rectus, often finding the epigastric artery in the way. As a consequence he prefers an oblique incision through the linea semilunaris. The gridiron incision, after the operation allows the tissues to resume their normal positions and relations, even being proof against injury during post operative vomiting, but is at the same time a hindrance to easy drainage. If the semilunar line cannot be found there is no harm done by going through the right rectus itself, provided the two layers of fascia are found and secured upon sewing up the abdomen.

The treatment of the appendix must depend upon the condition in which it is found. If ready to rupture clamp it with two clamps and cut between, always carefully ligating the mesoappendix. Treat the stump with carbolic acid and return the cecum to the peritoneal cavity. If there is time a purse string suture may be drawn about the base of the appendix, but this is not essential. There is some danger that clamping the appendix alone will not obliterate all its vessels and hemorrhage may result. Usually treatment with carbolic acid and alcohol are sufficient to prevent this. Always remove the appendix if possible and as early as possible after a diagnosis of appendicitis is made. In sewing up the wound use plain catgut for the peritoneum, chrome gut for the fascia and silkworm gut for the skin. If haste is necessary, use through and through silkworm gut. If there is much fat in the areolar tissue of the skin, make wide stitches, as the fat between the sutures will atrophy and the skin would otherwise pull out leaving a broad, unsightly scar.

Discussion.

Dr. Bonar. Why do you use silkworm gut in the skin?

Dr. O'Brien. For their strength and the fact that I believe they can be sterilized and do not become a culture medium for bacteria.

Dr. Briggs. Do you irrigate the peritoneal cavity with salt solution?

Dr. O'Brien. No, but I use normal salt enema for stimulation and also because by so doing I find my patients suffer less from thirst.

Dr. Temple. Large sponges are used to protect the rest of the peritoneal cavity from contamination?

Dr. McAulay. We believe the introduction of large sponges irritates the peritoneum covering the bowels and adds to the shock, and also that it is not necessary if careful technic is employed in using sponges on sponge holders.

Adjourned to meet in Cloverdale in February.

JACKSON TEMPLE,

Secretary.

BOOK REVIEWS

Medical Gynecology. By S. W. Bandler, M. D. Publishers, W. B. Saunders Co. 1909.

The second edition of Dr. Bandler's text-book of Medical Gynecology appearing, as it does, so shortly after the first, one would hardly look for many changes—the only new feature being the introduction of Dr. Head's surface markings as an aid to diagnosis.

The author covers the subject in a very thorough manner, the chapters on Gonorrhea and Hydrotherapy in particular being well done. Repetitions however are far too numerous and the volume could be materially reduced, adding much to the comfort of the student.

W. G. M.

Diseases of the Skin and the Eruptive Fevers. By Jay F. Schamberg, M. D. Publishers, W. B. Saunders Co., Philadelphia. 1908.

This small book briefly and accurately outlines the modern conception of dermatology and rather fully describes the cutaneous symptoms of the exanthemata, the latter feature being of special importance and value. In the words of the author:

"Dermatology in its broad and true sense embraces a consideration of all morbid processes that are characterized by cutaneous manifestations." In his usual dignified, scholarly style Schamberg presents a work that is pleasing to read as well as instructive. His wide experience enables him to write authoritatively upon the subject. The book is well indexed, and the text well arranged. It is disappointing, however, to find in the chapter on syphilis, no mention of the Wassermann serum-reaction test or its modifications, the value of which procedure is now generally recognized.

The consideration of the various cutaneous diseases is presented in a concise manner and the illustrations (black and white) are exceptionally good. For the section pertaining to the exanthemata, the author has drawn freely from his work on "Acute Contagious Diseases," (written in collaboration with Welch).

In addition to the usual exanthemata he has described the accidental eruptions that occur in certain other diseases (typhoid, typhus, epidemic cerebro-spinal meningitis, influenza, malaria, rheumatic fever, dengue, miliary fever, angina and tonsillitis).

To one desiring a small reference book, concise and instructive, this volume can be well recommended. H. E. A.

Practical Points in the Use of X-Ray and High-Frequency Currents. By Aspinwall Judd, M. D. Publishers, Rebman Co., New York.

This small book of 185 pages contains a preface which states that the book is intended expressly for the general practitioner who finds himself hopelessly at sea in beginning this kind of work. It would then be manifestly unfair to criticize it from the standpoint of the service it might render one already cognizant of the subjects of which it deals.

It contains nothing which would be of much service in aiding the general practitioner to choose the outfit which he should buy. If he already has an apparatus and should have no knowledge concerning it, he could get some elementary points concerning its use from this book. Having acquired this knowledge he must, as indeed the book advises him, turn to a larger more scientific publication for further instruction. On the other hand, the chapters on treatment contain paragraphs which epitomize well, and in a sane yet enthusiastic manner the conditions which, by X-Ray and high frequency treatments have been of therapeutic service. The author wisely states that these agents are of no curative value in cases of superficial epitheliomata with secondary glandular enlargement or in cases of carcinomata.

On the other hand attention is drawn to the marked therapeutic effect which these agents have upon sarcomata and the theory advanced that it is owing to a stimulation of the young cells which in case of carcinoma only leads to an increased epithelial formation, whereas in sarcoma, an older type of tissue—fibrous tissue—is produced, is very interesting.

Thus the book would be of some service to the beginner and the reading of it would probably stimulate the general practitioner into taking a more decided interest in these subjects.

G. L. PAINTER.

Treatment of the Diseases of Children. By Charles Gilmore Kerley, M. D. Publishers, D. Appleton Co., New York. 1909.

This is a most exasperating book; on each page there is information that is invaluable, but with this there is usually some statement which is controversial or is in direct contradiction to the teachings of most pediatricists. The great virtue of the work is that it is eminently practical. The minutiae of many therapeutic procedures are given in such detail that no one will have excuse for omitting to use them.

One of its most admirable divisions is that given over to gymnastic therapeutics; a subject which is too infrequently given due recognition. Kerley very properly recommends gymnastics for flattened or narrow conditions of the thorax, curvatures of the spine, flatfoot, congenital ataxia, anterior poliomyelitis, habitual constipation, and malnutrition. If only for this section, no practitioner who deals extensively with children can afford to be without the book.

In judging a work on the treatment of children one naturally turns to the chapter on the management of diphtheria, and it is very satisfying to find the author writing that "After a large experience in the use of antitoxin I am convinced that it is often given in too small initial doses, even by men who are familiar with its use." Even with this warning in mind the dose recommended by the author for laryngeal diphtheria is not sufficient. According to him, seven thousand to ten thousand units should be given at the first injection and repeated the following day, in cases which require intubation. It has been very clearly shown in the contagious wards of the San Francisco County Hospital that twelve to fifteen thousand units promptly given to laryngeal cases, and the dose repeated in twenty-four hours will in most instances prevent the necessity for intubation. The minimum initial dose of antitoxin should be five thousand units, from that up to fifteen thousand should be given in the beginning; and the size of the dose should be proportioned by the amount of toxæmia present. The weakness of the author's chapter on diphtheria, is in that it does not give a sufficiently clear picture of those varying degrees of toxæmia which should guide the physician in giving antitoxin. Considering how alarming a complication is heart failure supervening during diphtheria, one is disappointed to find no reference to the complication other than "When the heart action is irregular and intermittent and cyanosis develops, there is need of heart stimulants such as alcohol, strychnin, digitalis and strophanthus." One of the most important dicta laid down by the author, in reference to laryngeal diphtheria, is that "intubation should not be postponed until the child has become exhausted in its struggle for air." "Diphtheria is a disease in which every possible strength unit must be preserved."

The advice given about the treatment of scarlet fever is excellent. One would demur from the statement that "the value of the serum treatment has been by no means demonstrated." It is true that present conditions do not warrant us to advise the use of specific serum in every case of scarlet fever, but there is no possible doubt that the serious and severe symptoms of phlegmonous tonsillitis with extensive adenitis will be more promptly and thoroughly controlled with than without sufficient doses of antistreptococcus serum promptly given. One notices with some astonishment the absence of any reference to the use of the mustard pack which

has been given prominence by Heubner. We have no single therapeutic agent so valuable in dealing with the pneumonias or with severe bronchitis, mustard baths do not in any way equal the pack in therapeutic efficiency.

The most marked departure the author takes from recent accepted pediatric teaching is in that part of the book devoted to feeding. His devotion to clean milk and his support of certification is gratifying, but it is disappointing to find that he recommends and offers for use cream formulae. It may be possible in New York to obtain clean cream, but it certainly is not in San Francisco, and it is probably very difficult to obtain anywhere in this country. The average market cream is filthy, and mixed with gelatine or starch and some preservative. These facts should banish market cream from the list of substitute foods. The author persists in the statement which has been so often made, and so often refuted, that the casein in cow's milk is that which renders it difficult of digestion. This contention can be demonstrated by any one and with equal ease it can be shown that pure clean skimmed milk can be digested by the weakest baby in almost its normal concentration.

The chapters on feeding show no reference to the work of Finkelstein and his pupils, on the food intoxications of infancy; certainly no book can be considered a safe guide to the feeding of infants that overlooks these classical contributions to the pathology of digestion in early life. Although the author sounds a warning note against the overuse of fat in substitute mixtures, some of his formulas call for much too high a percentage of that element. One formula calls for almost 4% and one for considerably more than 4% and under those circumstances it is no wonder that the author has found that "constipation is one of the greatest difficulties one has to contend with in the feeding of bottle-fed babies." However, the advice given here is mitigated by that given under the heading "Symptomatic Adaptation." This paragraph contains detailed advice that will certainly make it easier, for any one who studies it carefully, to get better feeding results. The number of feedings recommended by the author in twenty-four hours is excessive, especially the number recommended for the early months, and for breast-fed infants. No child ever needs ten nursings in twenty-four hours. In fact, infants are often damaged by such overfeeding and many mothers are rendered impotent to supply breast milk by this very vicious practice. Seven feedings in the twenty-four hours are as many as any healthy child should be given. The writers sneer at the caloric method of feeding, very apparently arises from a misapprehension of that method. His statement that the average infant in this country cannot be fed by this system is probably true, but his argument that thirty-one thriving infants were given from one hundred forty to two hundred thirty calories in excess of the standard, does not prove anything. It is just such thriving overfed infants, who at the end of their first year or during their second, develop food intoxications and acquire all sorts of infections which because of their bad feeding they have no power to resist. There is no greater mistake than to feel that a fat, rapidly gaining baby is necessarily the best type of baby.

However, it would be ungracious to insist on the few weaknesses of a book which contains so very many incisively stated principles of pediatrics. No one can read the book without being benefited, and one in doubt about therapeutic procedure, turning here for aid, could hardly fail to find much help.

L. P.

SCHOOL HYGIENE.

D. C. Heath & Co., of Boston, will soon have out a new health book for the schools, entitled "Health Studies, or Applied Hygiene and Physiology." Dr. Ernest B. Hoag, director of health work in Throop Institute and the Pasadena city schools is the author. President Jordon of Stanford University has written the introduction. Those who have seen the manuscript speak very highly of the proposed book. It will no doubt have a large sale in many schools which are looking for a practical book.

ARMY MEDICAL CORPS EXAMINATIONS AT WASHINGTON, CHICAGO AND SAN FRANCISCO.

The Surgeon General of the Army announces that the War Department has appointed permanent boards for the preliminary examination of applicants for appointment in the Medical Corps of the Army to meet at Washington, D. C., Fort Sheridan (near Chicago), Illinois, and San Francisco, California, in addition to the usual preliminary examination boards that are assembled at various army posts throughout the United States from time to time. The permanent boards will hold sessions on the second Monday of each month.

A limited number of successful candidates will be appointed first lieutenants in the Medical Reserve Corps (salary \$2,000 per annum), and assigned to army posts until the next session of the Army Medical School, when they will be ordered to attend the school as "student candidates."

Applicants must be citizens of the United States, between twenty-two and thirty years of age, graduates of reputable medical schools, of good moral character and habits, and shall have had a year's hospital training after graduation, or its equivalent.

Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C."

DR. JOHN HARVEY DAVISSON.

John Harvey Davisson, M. D., College of Physicians and Surgeons, Baltimore, Maryland, 1876, where he received the Cathell Gold Medal of his class. Located at Warsaw, Ind., 1876, where he practiced medicine and surgery for ten years. Was appointed surgeon for the Fort Wayne & Chicago Railway, and was also elected secretary of the Surgeons' Association of the Pennsylvania Railway.

In Warsaw, Ind., in October, 1879, Dr. Davisson was united in marriage with Miss Blanche Williams, daughter of Hon. Wm. Williams. The doctor and his wife had one son, Carl Woodford Davisson. In 1886 he came to Los Angeles, where he has had a very active practice ever since. He died Nov. 1st, 1909, at the age of sixty years. Heart disease.

He represented the State of California at the World's Sanitary Congress at the World's Fair in Chicago, in 1893, and also at the Pan-American Medical Congress held in the city of Mexico in 1896, being at that time president of the board of health of the State of California. He also served a number of years in the Los Angeles Board of Health. He held membership with the American Medical Association, Los Angeles County Medical Society, State Medical Society, and the Southern California Medical Society (which he assisted in organizing). He also assisted materially in the organization of the California Hospital Association.

Notwithstanding his many engrossing interests Dr. Davisson was affiliated with various social and fraternal organizations, among them the California, Jonathan and Sunset Clubs. He was a very prominent Mason, belonging to Southern California Lodge No. 278, F. & A. M.; Signet Chapter No. 57, R. A. M.; L. A. Commandery No. 9, K. T., and Al Malaikah Temple, A. A. O. N. M. S.

FOUND DEAD.

The body of Dr. C. E. Hesman was found on Mono Lake Divide (Inyo County), September 24, 1909, murdered. Anyone having seen him prior to the above date will please notify the Norcross Investment Company, Room 89, Bacon Bldg., Oakland, Calif.

PELLAGRA.

Dr. J. F. Siler, Medical Corps, U. S. Army, and Chief of Department of Tropical Medicine in the New York Post Graduate Medical School, has been sent to Peoria, Ill., to investigate the recent outbreak of Pellagra.

THE SECOND INTERNATIONAL CONFERENCE ON LEPROSY, HELD IN BERGEN, NORWAY, AUG. 16-19, 1909.

In the Public Health Reports for September 17th appears the report of Passed Assistant Surgeon Donald H. Currie, of the U. S. Public Health and Marine Hospital Service, on the Second International Conference on Leprosy, held in Bergen, Norway, August 16-19, 1909. Dr. Currie was one of the official delegates representing the United States at the conference. In his report he states that the following enumeration gives the distribution of leprosy throughout the world as obtained from the reports of the official delegates, and from data furnished by the Norwegian government:

	* Cases.
France	246
Iceland	200
Germany	28
Roumania	208
Servia	3
Bulgaria	9
European Turkey	550
Greece	9
Crete	600
Russia	1,372
Italy	123
Spain	240
Palestine	800
India	97,340
Ceylon	589
Indo-China	10,500
Java	15,000
Borneo	68
Sumatra	896
Japan	40,000
Canada	20
Cuba	1,297
Jamaica	115
United States of Colombia	4,152
Argentine Republic	12,000
Algeria (in 26 years)	109
United States of America:	
Mainland of America	146
Hawaiian Islands	764
Porto Rico	17
Guam	19
Philippine Islands	2,330
Canal Zone	7

A brief review of the more important papers read at the conference is given. Dr. Ehlers, of Copenhagen, who recently made a visit to this country, presented the preliminary report of the Danish-French commission for the study of leprosy, the title of his paper being "The Transmission of Leprosy by Suctorial Insects."

The conference adopted the following resolutions:

* Approximate.

A.

I. The Second International Scientific Conference on Leprosy confirms in every respect the resolutions adopted by the First International Conference of Berlin, 1897.

Leprosy is a disease which is contagious from person to person, whatever may be the method by which this contagion is effected. Every country, in whatever latitude it is situated, is within the range of possible infection by leprosy, and may, therefore, usefully undertake measures to protect itself.

II. In view of the success obtained in Germany, Iceland, Norway, and Sweden, it is desirable that other countries should isolate lepers.

III. It is desirable that the children of lepers should be separated from their parents as soon as possible, and that they should remain under observation.

IV. An examination should be made from time to time of those having lived with lepers by a doctor having special knowledge.

It is desirable that lepers should not engage in certain trades or occupations.

All leper vagabonds and beggars should be strictly isolated.

B.

V. All theories on etiology and the mode of propagation of leprosy should be carefully examined to ascertain if they accord with our knowledge of the nature and biology of the bacillus of leprosy.

VI. The clinical study of leprosy induces the belief that it is not incurable. We do not at present possess a certain cure. It is desirable, therefore, to continue the search for a specific remedy with the greatest zeal.

The International Leprosy Conference, held in Berlin in 1897, arrived at the following conclusions: Every leper is a danger to those around him, the danger varying according to the nature and extent of his relations to others and also to the sanitary conditions under which he lives. Among those living in an insanitary manner, every leper is especially dangerous to his family and fellow-workers. The theory of the heredity of leprosy is becoming less probable, and the contagiousness of the disease is generally accepted. The following resolutions were formally adopted:

1. In countries in which leprosy forms foci or has a great extension, isolation is the best means of preventing the spread of the disease.

2. The system of obligatory notification and of observation and isolation, as carried out in Norway, is recommended to all nations with local self-government and a sufficient number of physicians.

3. It should be left to the legal authorities, after consultation with the medical authorities, to take such measures as are applicable to the special social conditions of the districts.

ITEMS FROM THE MARINE HOSPITAL SERVICE.

Surgeon Rupert Blue, who has had charge of plague preventive measures in California for the past thirty months, has been granted a four-months leave of absence in order that he may go abroad for purposes of study and research. During his temporary absence Passed Assistant Surgeon George W. McCoy will have charge of the epidemic operations of the Service, being assisted by Passed Assistant Surgeon W. C. Rucker, Assistant Surgeon F. Simpson and Acting Assistant Surgeon George Converse.

It is reported that two plague squirrels were found in the foothills back of Berkeley on January 11th.

PLAGUE IN GROUND SQUIRRELS.

In the Public Health Reports for August 27, 1909, appears an article on "Plague Among Ground Squirrels in Contra Costa County, California." In 1894 plague began to spread from central Asia. Since then it has been carried to practically all parts of the world, including the Pacific Coast of the United States, where the disease has appeared in man, in rats, and in ground squirrels. The infection in ground squirrels has so far appeared in Contra Costa and Alameda Counties, California, chiefly in the former, where, up to September 10, 1909, 220 plague infected squirrels had been found. The Public Health and Marine-Hospital Service is attempting to destroy all the ground squirrels in the involved area, or at least to so reduce them in number that the plague infection among them will die out of its own accord. This article gives a detailed account of plague infection among the ground squirrels in Contra Costa County, and the relation of squirrel plague to plague in man. It also describes the means employed for the destruction of the squirrels, and gives a serial list of infected squirrels with the location where found.

The article has been reprinted and a limited edition is available for distribution to those interested. Requests for copies should be made to the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

TREATMENT OF PELLAGRA.

Much interest has been aroused during the last two years in the subject of pellagra. A study of the disease in the United States has thus far shown that it is widely distributed throughout the south, and present in some localities in the north. The question of prognosis and treatment is naturally, therefore, one of much interest. Dr. C. H. Lavinder, of the Public Health and Marine Hospital Service, who for more than a year has been devoting his time to a study of the disease, has in a recent article¹ given a brief review of the subject.

He states that the prognosis must invariably be considered as grave, and that complete recovery can seldom be assured. Reliable statistics on the sub-

ject in the United States are practically limited to asylum cases, and give a mortality of 67%. It must be borne in mind, however, that asylum cases are undoubtedly the more advanced and hopeless ones, and for that reason will give a mortality much above the average. Lombroso gives statistics of hospital cases in Italy in 1883 and 1884, showing a mortality of 13%, whereas Wollenberg gives Italian statistics for 1905 showing a mortality of a little over 4%. The disease resembles tuberculosis, both in that it is an insidious and chronic condition, and that much depends upon early diagnosis and treatment, prognosis of early cases being far better than advanced ones. The importance of this is apparent when it is considered that the disease is an intoxication, and that it is probably associated with diseased corn or corn products used as food. An early diagnosis can, therefore, if the etiologic relationship of corn is correct, eliminate future doses of the poison, which otherwise would be continued.

Predisposition is believed to be an important factor in this disease. Lowered physical resistance, mental worry, insufficient food, bad housing and alcoholism are supposed to render one more susceptible.

In Italy laws have been passed regulating the use and storing of corn and derivatives, institutions have been established for the care and treatment of pellagrins, improved agricultural methods are encouraged, and assistance is given to the sick in many ways by the government.²

In the treatment of patients Lombroso recommends a liberal diet; in some cases he uses baths and cold douches, believing them to be of benefit in certain cases with nerve and skin manifestations; he has found arsenic a valuable remedy, and sodium chlorid of service.

Some authors have reported good results from the use of the newer arsenical preparations atoxyl and soamin.

Transfusion of blood from cured cases to the sick has been tried, and may prove of value.

¹ Public Health Reports, Sept. 10, 1909. Copies of this article can be obtained by making request to the Surgeon-General, Public Health and Marine Hospital Service, Washington, D. C.

² Public Health Reports, July 23, 1909, pp. 1053-1054.

BOARD OF EXAMINERS, DECEMBER SESSION.

Passed.

School of Medicine.	Date of Graduation.	Percentage.
Coll. of P. & S., Los Angeles, Cal.	6, 24, 09	87.3
Coll. of P. & S., Los Angeles, Cal.	6, 24, 09	81.7
Coll. of P. & S., S. F., Cal.	5, 22, 06	76.1**
Cooper Med. Coll., S. F., Cal.	11, 5, 08	79.6
Cooper Med. Coll., S. F., Cal.	11, 20, 08	75.6
Cooper Med. Coll., S. F., Cal.	6, 1, 09	75.4
Hahnemann Med. Coll. of the Pac., Cal.	10, 15, 03	84.1
Hahnemann Med. Coll. of the Pac., Cal.	5, 21, 08	82.3*
Hahnemann Med. Coll. of the Pac., Cal.	5, 21, 08	81.4*
Univ. of So. Cal., L. A., Cal.	6, 17, 09	87.2
Univ. of So. Cal., L. A., Cal.	6, 13, 05	86.7*
Univ. of So. Cal., L. A., Cal.	6, 13, 07	86.2
Univ. of So. Cal., L. A., Cal.	6, 17, 09	82.9
Univ. of So. Cal., L. A., Cal.	6, 17, 09	81.4
Univ. of So. Cal., L. A., Cal.	6, 17, 09	80.5*
Univ. of So. Cal., L. A., Cal.	6, 17, 09	77.1*
Univ. of So. Cal., L. A., Cal.	6, 13, 07	75.0*
Boston Univ., Sch. of Med., Mass.	6, 4, 95	83.9
Coll. of P. & S. of Chicago, Ill.	6, 5, 09	86.2
Cornell Univ. Med. Coll., N. Y.	6, 9, 09	85.5
Denver & Gross Coll. of Med., Colo.	5, —, 04	86.4
Hahn. Med. Coll., Chicago, Ill.	4, 25, 01	78.3
Hahn. Med. Coll., Chicago, Ill.	3, —, 86	87.2*
Hahn. Med. Coll., Chicago, Ill.	4, 14, 91	82.7
Hahn. Med. Coll., Chicago, Ill.	3, 24, 98	80.7*
Hahn. Med. Coll., Phila., Pa.	5, 15, 01	75.0*

Harvard Med. School, Mass.....	6, 24, 91	81.4
Harvard Med. School, Mass.....	6, 25, 02	75.1
Harvard Med. School, Mass.....	6, 29, 98	75.6**
Homeo. Med. Coll., Mo.....	4, —, 98	80.0
Jefferson Med. Coll., Pa.....	5, 15, 95	80.0***
Jefferson Med. Coll., Pa.....	5, 2, 93	80.0***
Johns Hopkins Univ., Md.....	1, 6, 08	85.8
Marion-Sims Coll. of Med., Mo.....	4, 10, 97	83.9*
McGill Univ., Montreal, Can.....	—, —, 05	76.3
Medico-Chirurgical Coll., Phila., Pa.....	—, —, 01	80.6*
N. Y. Homeo. Med. Coll. & Hosp., N. Y.....	5, —, 05	75.2
N. W. Univ., Chicago, Ill.....	6, 9, 09	85.4
N. W. Univ. Med. Sch., Ill.....	6, 16, 98	80.5*
N. W. Univ. Med. Sch., Ill.....	6, 20, 07	80.3
Rush Med. Coll., Ill.....	3, 19, 08	97.5
Rush Med. Coll., Ill.....	2, 19, 89	88.2**
Rush Med. Coll., Ill.....	9, —, 09	87.4
Starling Med. Coll., Ohio.....	4, 10, 02	80.1
State Univ., Iowa.....	3, 5, 85	85.5**
State Univ. of Kan.....	6, 9, 09	85.4
Tufts Med. Coll., Mass.....	6, 12, 07	81.9*
Univ. of Ga.....	3, 3, 83	83.8*
Univ. of Heidelberg, Germany.....	7, 1, 07	89.6
Univ. of Ill.....	6, 5, 09	82.1*
Univ. of Md.....	—, —, 03	81.2*
Univ. of Mich. Homeo. Med. Coll., Mich.....	6, —, 08	83.4*
Univ. of Mich.....	6, —, 02	81.3*
Univ. of Mich.....	6, 25, 91	79.0
Univ. of Minn.....	6, 7, 94	90.9
Univ. of Minn.....	6, 11, 08	75.0*
Western Univ. of London, Can.....	4, 7, 99	84.4
Yale Univ., Conn.....	6, 27, 06	87.6

Failed.

Coll. of P. & S., S. F., Cal.....	5, —, 06	72.7***
Coll. of P. & S., S. F., Cal.....	6, 6, 07	71.0**
Coll. of P. & S., S. F., Cal.....	5, 19, 09	66.5
Coll. of P. & S., S. F., Cal.....	6, 25, 02	42.9*
Cooper Med. Coll., S. F., Cal.....	11, 5, 08	71.8*
Cooper Med. Coll., S. F., Cal.....	5, —, 09	68.1
Univ. of So. Cal., L. A., Cal.....	6, 18, 08	71.7**
Coll. of P. & S. of Chicago, Ill.....	5, 24, 04	49.4
Coll. of P. & S. of Keokuk, Iowa.....	3, 2, 80	43.8
Jefferson Med. Coll., Pa.....	4, 27, 90	73.0
Jefferson Med. Coll., Pa.....	5, 4, 94	69.4**
Jefferson Med. Coll., Pa.....	5, 15, 95	59.6*
Kansas City Med. Coll., Mo.....	3, 16, 91	76.2
Kentucky School of Medicine.....	6, —, 89	71.2
Kentucky School of Medicine.....	6, 20, 94	69.7
Kentucky School of Medicine.....	3, 15, 89	66.8*
Mich. Coll. of Med., Mich.....	3, 3, 81	19.6
Royal Univ. of Turin, Italy.....	7, 5, 99	18.7
Rush Med. Coll., Ill.....	5, 22, 95	67.8
Univ. of Md.....	6, 1, 09	68.4
Univ. of Mich.....	6, 27, 95	71.5
Univ. of Mich.....	7, 1, 80	56.8
Woman's Hosp. Med. Coll. of Chicago, Ill.....	4, 1, 90	73.5

Osteopathy—Passed.

L. A. Coll. of Osteopathy, Cal.....	6, 3, 09	84.7
L. A. Coll. of Osteopathy, Cal.....	6, 3, 09	77.7*
L. A. Coll. of Osteopathy, Cal.....	1, 28, 09	75.0
Pac. Coll. of Osteopathy, Cal.....	6, 23, 09	81.6*
Pac. Coll. of Osteopathy, Cal.....	2, 4, 09	79.7*
Pac. Coll. of Osteopathy, Cal.....	6, 23, 09	78.9*
Pac. Coll. of Osteopathy, Cal.....	6, 23, 09	76.7
Pac. Coll. of Osteopathy, Cal.....	6, 23, 09	75.0

Osteopathy—Failed.

American Sch. of Osteopathy, Mo.....	6, 22, 97	61.0*
L. A. Coll. of Osteopathy, Cal.....	6, 3, 09	72.7*
L. A. Coll. of Osteopathy, Cal.....	6, 3, 09	67.5
Northern Institute of Osteopathy, Minn.....	6, 1, 97	70.3**
Pac. Coll. of Osteopathy, Cal.....	6, 23, 09	72.2
Pac. Coll. of Osteopathy, Cal.....	6, 23, 09	70.0*
Pac. Coll. of Osteopathy, Cal.....	6, 23, 09	67.9
Pac. Coll. of Osteopathy, Cal.....	6, —, 09	22.3

* Taken before.

NEW LICENTIATES.

C. S. Allen, A. G. H. Anderson, H. J. Andrews, L. B. Barnes, A. Beardslee, H. R. Boyer, J. H. Breyer, J. M. Brown, H. D. Brusco, E. A. Buehler, J. A. Collie, H. L. Connor, G. H. Copeland, A. Crawford, H. Damkroeger, B. Davis, P. DeLucis, J. S. Derrick, E. C. Dole, L. Eloesser, D. J. Evans, E. B. Fergusson, D. P. Flagg, H. G. Ford, B. S. Frary, E. C. Gilbert, R. H. Goodale, J. P. Goray, G. W. Hartman, A. W. Hiller, J. E. Jennison, E. J. Johnston, H. D. Kessler, E. K. Kester, F. W. K. Kidder, A. B. Lefler, H. Lischner, A. G. Lumsden, E. G. Lynn, L. W. Mansur, J. L. McDaniel, R. T. McGurk, F. M. McHugh, C. F. Metcalf, A. P. Miller, R. E. Moss, A. S. Murphy, A. H. Nahman, L. B. Nelson, B. J. O'Neill, Jr., L. W. Paul, A. Peterson, C. J. R. Peterson, J. A. Reily, C. H. E. Remondino, M. B. S. Reynolds, J. H. Robinson, S. E. Sanger, C. P. Shaffer, H. L. Shepherd, W. F. Smith, H. H. Sutherland, D. W. Thurston, W. R. Tyler, T. H. Ulyot, F. J. Wagner, S. Weiss, H. B. Yacoubi.

Dr. Wm. Fawcett Smith, Trinity Coll., Dublin, Ireland, 11, —, 63, and Dr. Frank M. McHugh, Louisville Hosp. Med. Coll., Ky., 7, 30, 08, took the August, 1909, examination, and upon review of papers and credentials, were granted a license December, 1909.

CONGRESS ON HYGIENE.

To the Editor of California State Journal of Medicine. Dear Sir:—On the invitation of the Department of State of the United States Government, the Fifteenth International Congress on Hygiene and Demography will convene for the first time on the American continent in Washington, D. C., from Sept. 26th to Oct. 1st, 1910. Section III of this Congress deals with the subjects of the Hygiene of Infancy and Childhood: School Hygiene. It is believed that this will be a meeting of the utmost importance.

We take this means of requesting your readers to let us know of any pieces of original work which are being done, bearing upon this topic. The general ground to be covered by this section is indicated by the enclosed rubric.

Sincerely yours,

A. JACOBI, President.

NEW AND NON-OFFICIAL REMEDIES.

Since advising you June 28, the Council has acted on the following products:

Articles accepted for N. N. R.;
Tannismuth (Heyden Chemical Works).
Digalen (Hoffmann-La Roche Chemical Works).
Benzosalin (Hoffmann-La Roche Chemical Works).
Benzosalin Tablets (Hoffmann-La Roche Chemical Works).

Thephorin (Hoffmann-La Roche Chemical Works).
Thephorin Tablets (Hoffmann-La Roche Chemical Works).

Veronal Sodium (Merck & Co.).
Zinc Peroxide Soap (Roessler & Hasslacher Chemical Co.).

Articles accepted for N. N. R. Appendix:
Dionin Ointment 5% (Manhattan Eye Salve Co.).
Argyrol Ointment 10% (Manhattan Eye Salve Co.).

Holocaine & Adrenalin Ointment 1% (Manhattan Eye Salve Co.).

Since advising you September 3, the Council has acted on the following products:

Articles accepted for N. N. R.:
Mergal (Riedel & Co.).
Salipyrin (Riedel & Co.).
Perogen Bath (Morgenstern & Co.).
Accepted for N. N. R. Appendix:
Atoxyl and Iron, Tablets (Sharp & Dohme).

Articles accepted for N. N. R.: Suprarenalin Inhalant (Armour & Co.); Bilein (Abbott Alkaloidal Co.); Bilein Pills, 1-4 Gr., 1-8 Gr., and 1-12 Gr. (Abbott Alk. Co.); Iodone Oil (Henry C. Blair Co.); Iodone Ointment (Henry C. Blair Co.).

Articles accepted for N. N. R. Appendix: Comp. Yellow Oxid and Adrenalin Ointment (M. E. S. Co.) (Manhattan Eye Salve Co.); Cocaine and Adrenalin Ointment (M. E. S. Co.) (Manhattan Eye Salve Co.).

SURGEON C. P. WERTENBAKER.

In February last Surgeon C. P. Wertenbaker, of the Public Health and Marine-Hospital Service, in giving an illustrated lecture on tuberculosis before the Negro Farmers' Conference at Savannah, Georgia, suggested the organization of a State Anti-Tuberculosis League for Negroes. The idea was well received and a league was organized.

The proposed plan of organization contemplated a league in each State, with a branch in every colored church. This plan, which has been followed, is given in detail in the Public Health Reports of May 28, 1909.

The movement was indorsed by the last conference of State and Territorial boards of health.

Up to August 6, leagues had been formed in the following States: Georgia, Louisiana, Mississippi, North Carolina and Virginia.

"A Working Plan" for these leagues has been published in the Public Health Reports of September 3, 1909, giving in detail the method of organization of State leagues and of the local branch leagues.

The "Proposed Plan of Organization," and the "Working Plan," have been reprinted, and limited editions are available for distribution to those interested in the work. Requests for copies should be addressed to the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

NEW MEMBERS.

Howe, R. C., Colton, Cal.
Hull, F. E., Los Angeles.
Dolman, E., San Francisco.
Cohn, David, San Francisco.
Bunnell, Sterling, San Francisco.
Rosenberg, Caroline, San Francisco.
Hunt, R. H., San Francisco.
McKibbin, Fred W., Big Oak Flat, Cal.
Brown, W. B., Pt. Richmond, Cal.
Cunningham, W. E., Pt. Richmond, Cal.
Abbott, Ura S., Pt. Richmond, Cal.
Evans, T. J., Loma Linda (San Bernardino Co.)
Champion, J. A., Colton, Cal.

Resigned.

Seymour, Francis A., Los Angeles.
Miller, Chas. F., Los Angeles.

Deaths.

Perrault, E. L., San Francisco.
Norton, Thos., San Luis Obispo.
Guthrie, H. H., San Bernardino.
Crowder, Henry C., Tracy, Cal.
Frasse, I. N., Los Angeles (Died in Monterey, Cal.)
Walker, Horatio, Pasadena, Cal.
Smith, Walter A., San Francisco.